Supplier Document Status Stamp

BSC

A. Records Designator: ☐ QA: QA ☒ QA: NA
B. LSN Relevancy: ☐ LSN Relevant ☒ Not LSN Relevant
C. Privileged or Copyright Protected: ☐ Yes ________ ☒ No
D. Procurement Document No. NN-HC4-00197
E. BSC Standard Document No. V0-CY05-NHC4-00197-00012-001-005

F. SUPPLIER DOCUMENT STATUS

1. ☒ WORK MAY PROCEED.
2. ☐ REVISE AND RESUBMIT. WORK MAY PROCEED SUBJECT TO RESOLUTION OF INDICATED COMMENTS.
3. ☐ REVISE AND RESUBMIT. WORK MAY NOT PROCEED.
4. ☐ REVIEW NOT REQUIRED. WORK MAY PROCEED.
5. ☐ FOR INFORMATION ONLY.

PERMISSION TO PROCEED DOES NOT CONSTITUTE ACCEPTANCE OR APPROVAL OF DESIGN DETAILS, CALCULATIONS, ANALYSES, TEST METHODS, OR MATERIALS DEVELOPED OR SELECTED BY THE SUPPLIER AND DOES NOT RELIEVE SUPPLIER FROM FULL COMPLIANCE WITH CONTRACTUAL OBLIGATIONS.

G. REVIEW COPY	NVM	NE										
	ECA	KAM										

H. Area Code NA System Code NA Baseline Level NA

I. DOCUMENT CATEGORY NA
(Attach 3, Attach 4, or SSRS Form as applicable)

J. Eugene C Allen [signature] 6/19/07
RESPONSIBLE ENGINEER/ANALYST (Printed Name and Signature) DATE

Title: Mineral Potential Report for DOE Land Withdrawal for Caliente Rail Corridor (resubmitted with additional signatures)

Supplier Document #: 21-1-20102-035

Supplier Rev.: 1

Supplier Date: 12/01/05

Reference #: NVT-CD-00164

NVM Nevada Transportation Manager Gene Allen
NE Nevada Engineering Kathy Mrotek

BSC

Supplier Document Distribution

Complete only applicable items.

QA: N/A

1. Supplier/Subcontractor Name:	Purchase Order/Subcontract No. and Title:	
Shannon & Wilson	NN-HC4-00197/ Exhibit I item 7.10, Final Mineral Potential Report	
2. BSC Submittal No.: V0-CY05-NHC4-00197-00012-001	Revision: 005	Title: Mineral Potential Report for DOE Land Withdrawal for Caliente Rail Corridor (resubmitted with additional signatures)

Responsible Individual:	Name (Print)	Initials	Mailstop	Date	Due Date
	Kathy Mrotek	KM	423	6/15/07	6/21/07

DISTRIBUTION

Discipline/Organizations	Abbrev.*	3. Name	Mailstop	4. For Review	5. After Acceptance
Nevada Transportation Manager	NVM	Gene Allen	NA	☒	☐X E ☐ H
				☐	☐ E ☐ H
				☐	☐ E ☐ H
				☐	☐ E ☐ H
				☐	☐ E ☐ H
				☐	☐ E ☐ H
				☐	☐ E ☐ H
				☐	☐ E ☐ H
				☐	☐ E ☐ H
				☐	☐ E ☐ H
				☐	☐ E ☐ H
				☐	☐ E ☐ H
				☐	☐ E ☐ H
				☐	☐ E ☐ H
				☐	☐ E ☐ H
				☐	☐ E ☐ H
				☐	☐ E ☐ H
				☐	☐ E ☐ H

6. Document transmitted contains OUO information? ☐ Yes ☒ No

*** Use these abbreviations on the Supplier Document Status stamp to indicate reviewers.**

BSC	# Transportation Data Pedigree Form *Complete only applicable items.*	QA: N/A Page 1 of 2

Subcontractor:	Item Number/Title/Revision:	Submittal Date:	SRCT No.:
Shannon & Wilson, Inc.	Mineral Potential Report for DOE Land Withdrawal for Caliente Rail Corridor Rev 1	6/12/07	06-00087

Section I. Submittal Information (includes above information)

Submittal Description and Revision Summary for Entire Submittal:

This report describes the results of an assessment of the mineral- and energy-resource potential of a 1-mile-wide and 320-mile-long corridor in Lincoln, Nye, and Esmeralda Counties, Nevada. This document is being re-submitted with the cover page signed.

Special Instructions

Section II. Data File Information (Add lines below if needed for additional files. Indicate "Last item" or "End of list" after last line used.)

Filename	Rev.	File Size	Description (File description and revision summary for file)	Application and Version/ Add-in or Extension and Version
Mineral Potential Report, 1dec05,signed.pdf	1	52,596 KB	Scanned version of the Mineral Potential Report	Adobe Acrobat 7.0

Section III. Metadata

☐ **GIS Metadata** All GIS data is preferred in ArcGIS9.1 UTM, NAD1983, Zone11, Feet.	Projection: Datum: Zone: Units:
☐ **CAD Metadata** CAD drawings are preferred in **Bentley MicroStation V8 and/or InRoads** and should adhere to established **CAD standards**.	Level descriptions: Scale: Units of Measurement: Horizontal and Vertical Datum:

Section IV. Data Screening (Completed by BSC personnel)

Acceptable for Review?	Screener Name:	Signature:	Date:
☒ Yes* ☐ No	Cathy Stettler	Cathy Stettler	6/12/07

*If "Yes", Data Storage Location: nvtdata\SW\Phase1\06-00087 Mineral Potential Report Rev 1 12-01-05

Comments: *(Justification for returning submittal is **required**; other comments are optional.)*

Product re-submitted with signed signature pages.

~~NV Rail Alignment EIS Related – Deliberative Process – Privileged~~ Not ~~LSN Relevant~~

TS-DSK-1002.3-r1

OS
6-25-07

BSC	**Transportation Data Pedigree Form** *Complete only applicable items.*	QA: N/A

Subcontractor:	Item Number/Title/Revision:	Submittal Date:	SRCT No.:
Shannon & Wilson, Inc.	Mineral Potential Report for DOE Land Withdrawal for Caliente Rail Corridor Rev 1	6/12/07	06-00087

Section V. STR/STR Support Disposition of Submittal

Process for Review?	** If "No", date returned:	Comments:	
☐ Yes ☐ No**			
STR/STR Support Name:		Signature:	Date:
Gene Allen		Ann Koplaw for Gene Allen	6/12/07

KAH 6/12/07

~~NV Rail Alignment EIS Related – Deliberative Process – Privileged~~ Not ~~LSN Relevant~~

CB 6-25-07

Form 3060-1
(July 1984)

Case File No: **NVN77880**

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MINERAL POTENTIAL REPORT
For
DOE Land Withdrawal for Caliente Rail Corridor

1 December 2005

LANDS INVOLVED:
Federal Lands located in
Lincoln, Nye, and Esmeralda Counties, Nevada
Comprising Approx. 308,600 acres
(See Appendix A of Report for Legal Description)

Prepared by:
Paul Godlewski, Shannon & Wilson, Inc.
Paul M. Godlewski
(Signature)
Project Manager, Geotechnical
(Title)
12 DEC 06
(Date)

Prepared by:
William Garfield, Bechtel ~~SAIC Co.,~~ LLC
Wm. J. Garfield
(Signature)
Transportation Project Manager
(Title)
18 Dec 06
(Date)

Reviewed by:
William Wilson, BLM
Wm B. Wilson
(Signature)
Geologist
(Title)
Jan 19, 2007
(Date)

Technical Approval:
Dan Netcher, BLM
(Signature)
Geologist
(Title)
1/19/07
(Date)

Management Acknowledgement:
John Ruhs, BLM
(Signature)
Field Manager
(Title)
Jan 19, 2007
(Date)

Shannon & Wilson prepared the Mineral Potential Report as requested by the Bureau of Land Management and the U.S. Department of Energy (under U.S. Department of Energy Prime Contract No. DE-AC28-01RW12101 with Bechtel/SAIC Company, LLC) and directed by Bechtel/SAIC Company, LLC in accordance with Bechtel/SAIC Company, LLC subcontract with Shannon & Wilson (Subcontract No. NN-HC4-00197). The recommendations contained in the Mineral Potential Report are solely those of the Bureau of Land Management.

Shannon & Wilson completed the Mineral Potential Report, Revision 1, on December 1, 2005. The U.S. Department of Energy held the report for final signature until December 2006. The approved Mineral Potential Report, Revision 1, represented here, releases the report with the completed signature page. The approved Mineral Potential Report, Revision 1, contains no additional changes, other than the completed signature page.

SUMMARY

This report describes the results of an assessment of the mineral- and energy-resource potential of a 1-mile-wide and 320-mile-long corridor in Lincoln, Nye, and Esmeralda Counties, Nevada. Public lands within this corridor, totaling about 308,600 acres, have been proposed for withdrawal by the U.S. Department Energy in an application to the Bureau of Land Management. The purpose of the withdrawal is to evaluate the land for the potential construction, operation, and maintenance of a new rail line that would originate near the town of Caliente, Nevada, and extend to Yucca Mountain about 20 miles southeast of Beatty, Nevada. If approved, the land withdrawn would preclude surface entry and new mining claims, subject to valid existing rights, for a period up to 20 years. The withdrawal would not affect mining activities associated with existing mining claims, mining operations, mineral-material activities, or energy-leasing operations, nor would the withdrawal affect land uses such as grazing, recreation, or existing, pending, and future BLM-issued rights-of-way. The BLM would retain management responsibilities of the public lands and would continue to manage these lands consistent with BLM land-use plans.

As many as 915 active mining claims exist in or near the corridor. Six exploration notices and two plans of operation have been authorized by the Bureau, as well as 16 oil and gas leases. There are no geothermal leases. The Bureau has authorized 24 mineral-material disposal sites within the corridor, most for the Nevada Department of Transportation.

The geology along the corridor is very complex. Rocks range in age from Precambrian metamorphic and igneous rocks to unconsolidated Quaternary alluvium. Major mountain-building events, each superimposed on older events, have complicated the structural history of the region. More recent crustal extension has caused block faulting, which has further complicated an understanding of the region because about half of the bedrock geology lies deep in valleys covered by alluvium.

The corridor crosses or comes close to 27 recognized mining districts. Substantial production of metallic minerals has been recorded at Bare Mountain, Bullfrog, Goldfield, and Tybo. Many other mineral commodities, chiefly nonmetallic and industrial minerals, are known to occur or have been produced from within and near the corridor. These commodities include barite, limestone and dolomite, clay, decorative and dimension stone, diatomite, fluorspar, natural

aggregate (including sand and gravel), perlite, pozzolan, pumice and pumicite, saline minerals, silica, sulfur, and zeolites. Scattered occurrences of uranium are also known.

Oil and gas have not been produced from the corridor. In Railroad Valley, about 20 miles northwest of the corridor, oil has been produced during most of the past 50 years.

Geothermal resources occur widely within and near the corridor in the form of warm and hot springs and thermal wells. Some of these resources are used commercially and domestically.

Turquoise occurs at Warm Springs Summit. This is the only known occurrence of gemstones within the corridor.

Forty-one (41) separate areas covering the entire corridor were assessed for their potential to contain metallic mineral deposits associated with plutonic rocks and with epithermal systems. Of these 41 areas, 12 were assigned a high potential (H) for metallic mineral deposits, and 3 were assigned a moderate potential (M). The remaining 26 areas were not favorable for metallic mineral resources. The certainty associated with the assigned mineral-potential ratings ranged from low (B) to high (D). In general, areas assigned high and moderate potential are at the far-eastern side of the corridor, along the northern part of the corridor, and along the western part of the corridor.

Fourteen (14) nonmetallic- and industrial-mineral commodities were examined in the assessment. Ten (10) mineral commodities were assigned a high potential (H) for one or more parts of the corridor: barite, carbonate rocks, clay, diatomite, natural aggregate (including sand and gravel), perlite, pozzolan, silica, sulfur, and zeolites. The other four mineral commodities were assigned a moderate potential (M) for one or more parts of the corridor: decorative and dimension stone, fluorspar, pumice and pumicite, and saline minerals. The certainty associated with these moderate and high mineral-potential ratings ranged from low (B) to moderate (C), depending on the mineral commodity.

The potential for oil and gas within the corridor was assigned a moderate potential (M) from about Warm Springs Summit eastward (the eastern half of the corridor). The certainty associated with this rating was low (B). West of Warm Springs Summit, the corridor had few characteristics that were favorable for accumulations of oil and gas, and several characteristics that were unfavorable.

The potential for geothermal resources within the corridor was assigned a high potential (H), chiefly in and near those areas that exhibit geothermal manifestations such as hot and warm springs, thermal wells, and a steeper-than-normal geothermal gradient. The certainty associated with this rating for several areas was high (D).

The potential for uranium resources was assigned a moderate potential (M) north of Caliente and east of Beatty, each with an associated certainty rating of low (B). The potential for gemstones (turquoise) was assigned a moderate potential (M) at Warm Springs Summit, with an associated certainty rating of moderate (C).

It is recommended that areas with high potential for locatable mineral resources be excluded from the withdrawal or that the rail corridor be realigned to avoid these areas. These areas include Areas 3, 8, 10, 11, 12, 14, 19, 21, 31, 32, 33, and 38, as well as locatable nonmetallic minerals that have been assigned high potential as depicted on the figures in Appendix E. It is also recommended that areas identified as having moderate potential for locatable minerals be studied further to help determine if reclassification to a high potential is warranted. These areas include Areas 4, 23, and 29, as well as locatable nonmetallic minerals that have been assigned moderate potential as depicted on the figures in Appendix E. Reclassified areas should be excluded from the withdrawal. Finally, it is recommended that the withdrawal be terminated as soon as possible so that the affected public lands can be opened to new mineral exploration and potential development.

TABLE OF CONTENTS

Page

SUMMARY i

ACRONYMS AND ABBREVIATIONS v

1.0 INTRODUCTION 1
- 1.1 Purpose and Scope 1
- 1.2 Lands Involved 2
- 1.3 Land Status and Record Data 3
  - 1.3.1 Mining Claims, Notices, and Plans of Operation 5
  - 1.3.2 Mineral Leases 5
  - 1.3.3 Mineral-Material Disposal Sites 5

2.0 GEOLOGY 5
- 2.1 Physiography 5
- 2.2 Stratigraphy 6
- 2.3 Structural Geology and Seismicity 9

3.0 KNOWN MINERAL AND ENERGY RESOURCES 10
- 3.1 Mining Districts 10
- 3.2 Other Known Mineral Occurrences 16
  - 3.2.1 Barite 16
  - 3.2.2 Carbonate Rock (Limestone and Dolomite) 17
  - 3.2.3 Clay 17
  - 3.2.4 Decorative and Dimension Stone 17
  - 3.2.5 Diatomite 18
  - 3.2.6 Fluorspar/Fluorite 18
  - 3.2.7 Natural Aggregate (including Sand and Gravel) 18
  - 3.2.8 Perlite 19
  - 3.2.9 Pozzolan 20
  - 3.2.10 Pumice and Pumicite 20
  - 3.2.11 Saline Minerals 20
  - 3.2.12 Silica 21
  - 3.2.13 Sulfur 21
  - 3.2.14 Zeolites 22
- 3.3 Oil and Gas 22
- 3.4 Geothermal Energy 23
- 3.5 Uranium 25
- 3.6 Gemstones 25

TABLE OF CONTENTS (cont.)

Page

4.0 POTENTIAL FOR UNDISCOVERED MINERAL AND ENERGY RESOURCES........26
- 4.1 Metallic Minerals Potential........27
- 4.2 Nonmetallic/Industrial Minerals Potential........71
  - 4.2.1 Barite........72
  - 4.2.2 Carbonate Rock (Limestone and Dolomite)........72
  - 4.2.3 Clay........73
  - 4.2.4 Decorative and Dimension Stone........73
  - 4.2.5 Diatomite........73
  - 4.2.6 Fluorspar/Fluorite........73
  - 4.2.7 Natural Aggregate (including Sand and Gravel)........74
  - 4.2.8 Perlite........74
  - 4.2.9 Pozzolan........74
  - 4.2.10 Pumice/Pumicite........75
  - 4.2.11 Saline Minerals........75
  - 4.2.12 Silica........75
  - 4.2.13 Sulfur........76
  - 4.2.14 Zeolites........76
- 4.3 Oil and Gas Potential........76
- 4.4 Geothermal Potential........77
- 4.5 Uranium Potential........77
- 4.6 Gemstone Potential........77

5.0 RECOMMENDATIONS........78

6.0 REFERENCES........79

LIST OF TABLES

Table No.

1 Summary of Mining District Production History (4 pages)........11
2 Summary of Metallic-Mineral Deposit Models........28

LIST OF FIGURES

Figure No.

1 General Location of Proposed Land Withdrawal........4

LIST OF PLATES

Plate No.

1	Metallic Mineral Potential
2	Oil and Gas Potential
3	Geothermal Potential
4	Geologic Map (2 sheets)

APPENDICES

Appendix

A	Legal Description of Lands Involved
B	Mining Claim and Mineral Leasing Recordation Report
C	Mining Districts and Other Known Mineralized Areas Within and Near the Proposed Land Withdrawal
D	Mineral Deposit Models and Other Descriptions of Mineral and Energy Resources
E	Figures Showing Mineral Potential for Non-Metallic and Industrial Minerals and Uranium

ACRONYMS AND ABBREVIATIONS

A	insufficient evidence for certainty rating (as relates to mineral potential)
Ag	silver
As	arsenic
Au	gold
B	low certainty rating (as relates to mineral potential)
BCFG	billion cubic feet of gas
BGRR	Beatty Goldfield Railroad
Bi	bismuth
BLM	U.S. Bureau of Land Management
C	moderate certainty rating (as relates to mineral potential)
Cu	copper
D	high certainty rating (as relates to mineral potential)
DOE	U.S. Department of Energy
GCMC	Goldfield Consolidated Mines Company
H	high mineral potential
KGRA	known geothermal resource area
L	low mineral potential
LV&TRR	Las Vegas and Tonopah Railroad
km	kilometer
M	moderate mineral potential
Ma	million years old or million years ago or million years before present
MMBO	million barrels of oil
Mn	manganese
MPR	Mineral Potential Report
MVGI	Metallic Ventures Gold, Inc.
NBMG	Nevada Bureau of Mines and Geology
NDOT	Nevada Department of Transportation
NTTR	Nevada Test and Training Range (formerly Nellis Air Force Base and Testing Range)
O	no mineral potential
opt	ounces per ton
oz	ounce, specifically troy ounce in this report
Pb	lead
ppm	parts per million
PVC	polyvinyl chloride
S&W	Shannon & Wilson, Inc.
Sb	antimony
T&TRR	Tolicha and Tonopah Railroad
USGS	U.S. Geological Survey
Zn	zinc

MINERAL POTENTIAL REPORT
FOR
U.S. DEPARTMENT OF ENERGY LAND WITHDRAWAL FOR
CALIENTE RAIL CORRIDOR

1.0 INTRODUCTION

This report describes the results of an assessment of the mineral- and energy-resource potential of a proposed land withdrawal for the study of a possible rail line from Caliente, Nevada, to Yucca Mountain, Nevada. The rail line has been proposed by the U.S. Department on Energy (DOE) to transport nuclear wastes to Yucca Mountain from sites throughout the country.

As used throughout this report, the expression "proposed land withdrawal" is synonymous with the "Caliente corridor" or simply the "corridor."

1.1 Purpose and Scope

The U.S. Bureau of Land Management (BLM) received an application from the DOE to withdraw 308,600 acres of public land in Lincoln, Nye, and Esmeralda Counties, Nevada. If approved, the land withdrawal would preclude surface entry and new mining claims for all locatable minerals, subject to valid existing rights, for a period of up to 20 years. Locatable minerals consist of metallic minerals and many nonmetallic/industrial minerals. The purpose of the withdrawal is to evaluate the land for the potential construction, operation, and maintenance of a new rail line that would originate near the town of Caliente, Nevada, and would extend to Yucca Mountain about 20 miles southeast of Beatty, Nevada.

The rail line would be used to transport spent nuclear fuel and high-level radioactive waste to a geologic repository at Yucca Mountain. A notice of the withdrawal application was published in the *Federal Register* on 29 December 2003 (68 FR 74965). The notice segregated the proposed withdrawal for up to two years from settlement, sale, location, or entry under the general land laws, subject to valid existing rights, while various studies and analyses are made to support a final decision on the withdrawal application (application NVN 77880). One of these required studies is a *mineral potential report* of the lands proposed for withdrawal.

The descriptions in this mineral potential report of the geology, mining districts, and known mineral occurrences are based on information gathered from publicly available reports, data, and databases. Field visits to selected areas along the Caliente corridor were conducted as part of previous studies (Shannon & Wilson, 2005a, b). Assessment of the *potential* for undiscovered mineral and energy resources and their *certainty of occurrence* are based on professional judgments (see BLM Manual 3031, *Energy and Mineral Resource Assessment*).

The purpose of this report was to assess the mineral- and energy-resource potential of the proposed land withdrawal. This report was prepared to address this purpose and is not to be used for any purpose other than the one for which it was prepared.

1.2 Lands Involved

The proposed land withdrawal is contained entirely within Lincoln, Nye, and Esmeralda Counties, Nevada. A legal description of the lands proposed for withdrawal is contained in Appendix A. Figure 1 shows the general location of the proposed withdrawal, and the attached Plates show the proposed withdrawal in more detail.

About 91.3 percent of the land within the boundary of the proposed withdrawal is public land managed by BLM. The remaining lands are administered and/or owned by the Department of Defense (3.7 percent of the proposed withdrawal); the DOE (1.8 percent of the proposed withdrawal); private land holders (2.7 percent of the proposed withdrawal); and Native Americans (0.5 percent of the proposed withdrawal). The withdrawal would apply only to public lands administered by BLM; private land (about 8,300 acres), Department of Defense lands (about 115,000 acres); DOE lands (about 5,500 acres), and Native American lands (about 1,500 acres) would not be withdrawn by this action.

Public lands within the proposed withdrawal are used for a variety of activities and purposes, including grazing, mining, recreation, and utility and transportation corridors. These activities and uses, and how they are managed, are described in Resource Management Plans prepared by BLM Field Offices in Battle Mountain, Ely, and Las Vegas, Nevada. The effects of the proposed withdrawal on these other uses are described in an associated Environmental Assessment.

Under the proposed withdrawal, BLM would retain management responsibilities of the public lands and would continue to manage these lands consistent with BLM land-use plans. Mining activities associated with existing mining claims and mining operations would continue. The land withdrawal would cross several rights-of-way for electrical transmission and telecommunication lines, pipelines, and BLM-designated utility corridors, as well as grazing allotments and areas used for recreation. Activities within these rights-of-way, grazing allotments, and recreation areas would not be affected by the land withdrawal. Furthermore, the land withdrawal would not restrict BLM from granting new rights-of-way, easements, special use permits, mineral-material permits, or energy leases on public lands within the boundaries of the withdrawal.

1.3 Land Status and Record Data

BLM records show that the surface and mineral estates of the federal land within the proposed withdrawal are held by the United States and are administered by BLM Field Offices in Battle Mountain, Ely, and Las Vegas.

Searches of BLM's LR2000 database conducted in May and June of 2005 identified numerous active mining claims, mineral leases, mineral-material disposal sites, exploration notices, and Plans of Operation for the lands segregated in the *Federal Register* notice (68 FR 74065). The results of these searches are contained in Appendix B. Some of the encumbrances listed in Appendix B may lie outside the actual boundary of the proposed withdrawal, because the *Federal Register* notice announcing the proposed withdrawal lists only the sections that contain the lands proposed for withdrawal and not the quarter-quarter sections contained in the legal description (Appendix A). In many cases, some or most of the sections listed in the *Federal Register* notice lie outside the boundaries of proposed withdrawal.

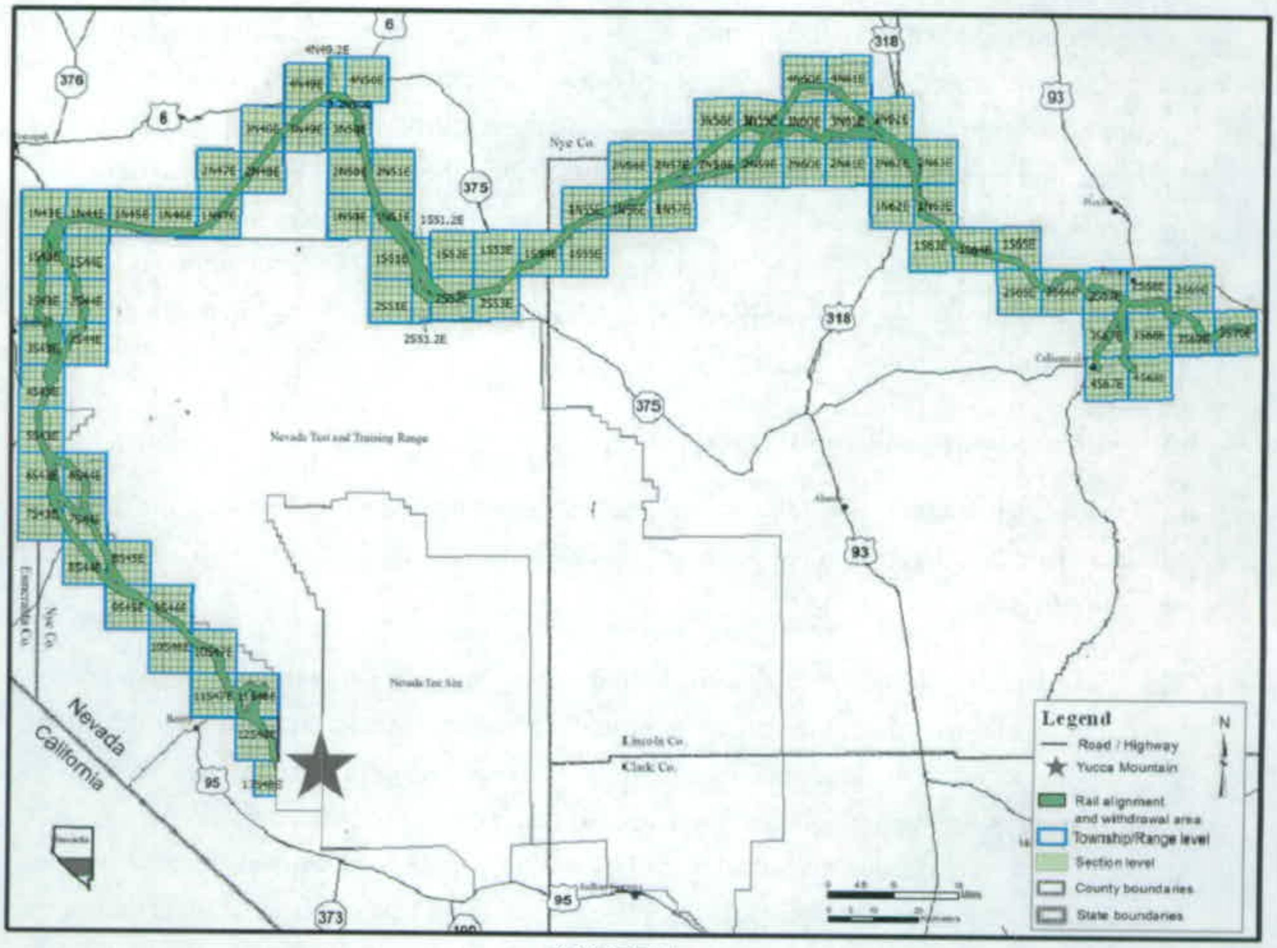


FIGURE 1
GENERAL LOCATION OF PROPOSED LAND WITHDRAWAL

Notes:

1. This map shows the approximate location of the proposed land withdrawal. A legal description of the proposed land withdrawal is contained in Appendix A.
2. No warranty is made to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

1.3.1 Mining Claims, Notices, and Plans of Operation

A Mining Claim and Mineral Leasing Recordation Report (see Appendix B) indicates that there are at most 906 active lode mining claims, eight active placer claims, and one active mill site claim within the proposed withdrawal area described in 68 FR 74065. In addition, there are at most six exploration notices and two Plans of Operation within the proposed withdrawal. Appendix B lists the names of people and companies that have filed notices and Plans of Operation with BLM. The general locations of these encumbrances are shown in Plate 1.

1.3.2 Mineral Leases

At most, 16 oil and gas leases are within or partly within the proposed withdrawal (see Appendix B). The locations of these leases are shown in Plate 2. As of 6 June 2005, no geothermal leases are within the proposed withdrawal (Plate 3).

1.3.3 Mineral-Material Disposal Sites

Three mineral-material disposal sites are within the proposed withdrawal; these are places where mineral materials have been sold by the government to private entities (see Appendix B). BLM has issued 21 mineral-material rights-of-way grants within the proposed withdrawal area for use by the Nevada Department of Transportation (NDOT). No free-use permits have been issued to federal or state agencies for the use of common varieties of sand, stone, and gravel.

2.0 GEOLOGY

2.1 Physiography

The proposed land withdrawal is a 1-mile-wide corridor, with several bifurcating segments, that extends approximately 320 miles from the vicinity of Caliente, Nevada, to Yucca Mountain, Nevada (Figure 1). The physiography of the region is illustrated in any of the three plates that accompany this report.

The corridor traverses the southern part of the Great Basin (and a small area on the east side of the corridor that drains to the Colorado River and, technically, is not part of the Great Basin). This region is comprised largely of north-trending mountain ranges and intervening valleys.

Many of the valleys have internal surface drainage. This physiography is largely the product of large-scale extension of the crust over the past several million to tens-of-millions of years.

2.2 Stratigraphy

Plate 4 (Sheet 1) shows the geology along the corridor. Plate 4 (Sheet 2) contains the legend for all rock units illustrated in Sheet 1. The stratigraphy along several parts of the corridor is shown in Sheet 2.

The geology along the corridor is quite complex. In general, extensive outcrops of Tertiary volcanic rocks characterize the western part of the corridor, whereas Paleozoic sedimentary rocks are widely exposed in the eastern part. The oldest rocks—1.4 to 1.7 billion-year-old schist, gneiss, metasedimentary, and granitic rocks—are exposed in the Bullfrog Hills west of Beatty and in the Trappman Hills northwest of Pahute Mesa (Workman et al., 2002; Slate et al., 1999). Overlying these oldest rocks is the Pahrump Group, an 11,000-foot-thick section of conglomerate, quartzite, sandstone, shale, dolomite, limestone, chert, and diabase (Hunt and Mabey, 1966). Overlying the Pahrump Group is the Noonday Dolomite (of Precambrian age). This dolomite marks the beginning of a long period of alternating marine and terrestrial sedimentation that continued into the Permian age some 225 million years ago. In all, tens of thousands of feet of sedimentary rock developed during this time period; more than 35,000 feet of sedimentary rocks accumulated in what is now the vicinity of the Nevada Test Site (Laczniak et al., 1996).

The rock units lying directly above the Noonday Dolomite consist of quartzite, sandstone, siltstone, and shale with subordinate limestone and dolomite that represent brief transgressive sequences. Late Middle Cambrian to Middle Devonian rocks are mostly limestone and dolomite, with interfingering tongues of shale (e.g., the Dunderberg Shale) and sandstone/quartzite (e.g., the Eureka Quartzite). The Antler Orogeny, a mountain-building event at the end of the Devonian period, uplifted parts of the area and caused a major change in the pattern of sedimentation (Cole and Cashman, 1999). During the Mississippian Period, deposition of carbonates, as typified by the Joana Limestone, continued in stable shelf areas along the east side of the corridor, whereas argillite, quartzite, sandstone, and conglomerate, as typified by the Eleana Formation and Chainman Shale, accumulated farther west. During Late Pennsylvanian and Early Permian ages, seas returned to most of the area, resulting in the deposition of sediments that now form the Ely Limestone Formation, Bird Spring Formation, and laterally equivalent stratigraphic units. After the deposition of terrestrial sediments in the Early Permian, Late Permian seas again spread across the region, resulting in what today are the Toroweap and Kaibab Formations.

From Late Permian through Jurassic time, sedimentary rocks are present as erosional remnants in the Spring Mountains and in southeastern Lincoln County (Tschanz and Pampeyan, 1970; Grose and Smith, 1989). In these areas, an alternating sequence of terrestrial sandstone, shale, siltstone, marine limestone, dolomite, and gypsum of Permian and Early Triassic age grades upward into coastal-plain and eolian sequences of Late Triassic and Jurassic age. In Esmeralda and northern Nye Counties, conglomerate, sandstone, siltstone, limestone, chert, and greenstone of Permian to Jurassic age are exposed in scattered outcrops and are partly allochthonous (that is, transported along thrust sheets from original sites farther west) (Albers and Stewart, 1972; Kleinhampl and Ziony, 1985).

From Middle Jurassic to Late Cretaceous time, a major mountain-building event, referred to as the Sevier Orogeny, pushed regional sheets of rock in eastern Nevada toward the east, the evidence of which is visible today as the Keystone and Pahranagat faults (Laczniak et al., 1996; Faunt, 1997). Accompanying this crustal compression, and extending into early Tertiary time, was the intrusion of granitic magmas into the crust, today visible as scattered small stocks and larger plutons (Grose and Smith, 1989).

The mountain ranges that developed during the Sevier Orogeny were eroded throughout most of early Tertiary time (from about 65 to about 38 million years ago). Toward the end of this time, the crust throughout the area that would eventually become the Great Basin began to stretch. This crustal stretching (or extension) continues to the present day along active normal faults that bound many of the mountain ranges within and near the corridor. At about the same time, large northwest-trending strike-slip faults developed in western Nevada and eastern California associated with the Walker Lane (Laczniak et al., 1996; Faunt, 1997).

Beginning in early to middle Tertiary time, before the mountains and valleys of the Great Basin developed, episodic eruptions from large volcanic calderas covered extensive parts of central and southern Nevada (Kleinhampl and Ziony, 1985). During middle Tertiary time, major sheets of ash-flow tuffs, including the Needles Group, the Monotony and Shingle Pass Tuffs, and the

Pahranagat Formation, were emplaced across the region (Best et al., 1989; Rowley et al., 1995). From about 16 to 7 million years ago (middle-late Tertiary time), 17 extensive sheets of ash-flow tuff and lava were erupted from large, overlapping calderas in south-central Nevada. The measured thickness of these deposits on the Nevada Test Site exceeds 13,700 feet (Laczniak et al., 1996; Warren et al., 1998). Volcanic rock units visible today from this period (erupted chiefly between 14 and 11 million years ago) include the Belted Range, Crater Flat, Paintbrush, and Timber Mountain Groups in the vicinity of the Nevada Test Site. The source of these rocks was a complex of calderas, among which are the Claim Canyon, Silent Canyon, and Timber Mountain calderas. The youngest caldera eruptions in this region occurred between 9.4 and 7.4 million years ago. Rock units from these eruptions include the Thirsty Canyon Group (Minor et al., 1993).

Substantially reduced and much less frequent eruptions continued into late Tertiary and Quaternary time. The youngest volcanic rocks within or near the corridor are scattered cinder cones and associated basalt flows near Yucca Mountain; they are dated at 1.1 to 0.077 million years old (Warren et al., 1998; Slate et al., 1999).

Starting in middle Tertiary time and continuing to today, the ranges and valleys of the Great Basin began to take shape. As the mountain ranges rose, coarse-grained detritus was shed from the exposed flanks of the ranges where they gradually interfingered with finer-grained sediments and lake deposits in the lowest parts of the valleys. The lakes would occasionally dry up, resulting in a variety of deposits, including evaporite deposits (Rowley and Shroba, 1991; Swadley and Simonds, 1994a and 1994b; Scott et al., 1995; Fridrich, 1998; Snow and Lux, 1999; Slate et al., 1999). The oldest and deepest basin-fill sediments are typically lithified, whereas the youngest basin-fill sediments become progressively less consolidated with decreasing depth and age.

Quaternary sediments within the corridor are generally unconsolidated. Relatively thin basalt flows and tuff layers commonly are intercalated with basin-fill sediments. The basin-fill sediments can be more than 4,000 feet thick (Laczniak et al.,1996). In some areas, such as Crater Flat, Yucca Mountain, Oasis Valley, and Dry Lake Valley, faults have remained active and have offset basin-fill sediments during the past 10,000 years (Minor et al., 1993; Swadley and Simonds, 1994a, 1994b; Simonds et al., 1995; Fridrich et al., 1999).

2.3 Structural Geology and Seismicity

The Great Basin lies within a broader structural region known as the Basin and Range. As the name implies, the Basin and Range consists of mountain ranges separated by intervening basins (or valleys). One of the structural characteristics of the Basin and Range is crustal extension. This area of crustal extension spans a length of nearly 2,500 kilometers (km) from Idaho and Montana to central Mexico (Dickinson, 2003).

The crust traversed by the Caliente corridor is still being actively extended in an east-west direction. Thatcher et al. (1999) estimated that the crust of the Great Basin has been extended along faults by a factor of 2 over the past 20 million years. The cause of the extension is believed to be due to interactions and differences in the direction of travel between the North American and Pacific tectonic plates. The edges of the plates grind against each other in coastal California along the San Andreas Fault where the Pacific plate is moving generally to the northwest and the North American plate is moving to the west. North of about latitude 36 degrees, part of the differential motion between the plates is thought to be transmitted through the Sierra Nevada-Great Valley eastward into the Great Basin (Bennett et al., 2003; Bennett et al., 1999; Thatcher et al., 1999; Oldow et al., 2001). This has resulted in a pattern of right-lateral strike-slip and normal faults in the western part of the Great Basin, becoming predominantly normal faults in the east-central part of the Great Basin. Geodetic measurements suggest that present-day crustal extension in the central Great Basin is about 9 to 13 mm per year. Most of this extension has occurred and is still occurring in the western Great Basin, with smaller amounts of extension along the eastern edge of the basin (Bennett et al., 2003; Bennett et al., 1999; Thatcher et al., 1999; Wallace, 1984). South of latitude 36 degrees, the San Andreas Fault system may accommodate the relative motions between the North American and Pacific Plates, resulting in far less crustal extension (Bennett et al., 1999). Consistent with the east-west extension across the basin and northwest-trending, right-lateral faulting along the western edge of the Great Basin, Quaternary-age faults are typically north-trending and normal.

Quaternary faults in and near the corridor are shown in Plate 4. Few of these faults have ruptured the surface during Holocene time (the past 10,000 years). Historically, numerous small- to moderate-magnitude earthquakes, and occasionally a large-magnitude earthquake, have struck the region. Most of the seismicity is concentrated in the western part of the Great Basin and, to a lesser extent, along the eastern edge of the basin (Bell et al., 2004).

3.0 KNOWN MINERAL AND ENERGY RESOURCES

3.1 Mining Districts

Detailed descriptions of 27 mining districts in and near the proposed land withdrawal are contained in Appendix C (Section C.1). The locations of these districts are shown in Plate 1. Table 1 shows production data for each mining district. Appendix C (Section C.2) describes three other known areas outside of the mining districts where mineral commodities have been produced. The paragraphs below briefly describe the history of mining in the southern part of Nevada and in and near the proposed land withdrawal.

TABLE 1
SUMMARY OF MINING DISTRICT PRODUCTION HISTORY
(Districts listed from southwest to northeast along the Caliente rail corridor)

Mining District and Sources	Ore (tons)	Gold (oz)	Silver (oz)	Copper (lbs)	Lead (lbs)	Zinc (lbs)	Mercury (flasks)	Other	Years Produced	Comments
Bare Mountain (Kral, 1951; Cornwall, 1972; Nevada Bureau of Mines and Geology, 2003)	X (See Notes)	>244,896	X	--	--	--	172	Fluorite, ceramic silica, cinders, pumicite	1905-2001	Includes gold production from Daisy and Sterling mines (1983-2001). 35 tons of gold and silver ore produced from Mexican claims. Unrecorded gold and silver production from the Telluride, Gold Ace, and other mines. 140,000 tons of fluorite produced from Daisy and Goldspar mines (1918 – 1972).
Bullfrog (Lincoln, 1923; Cornwall, 1972; Nevada Bureau of Mines and Geology, 2003)	286,664	2,425,448	3,895,200	5,294	11,897	--	--	bentonite	1905-1999	Most gold and silver production from period 1989 to 1999. Proven and probable reserves: Gold Bar (1987): 1.23 million tons of gold ore; Montgomery-Shoshone (1988): 3.1 million tons @ 0.072 opt gold and 0.240 opt silver; Bullfrog (1996): 10.2 million tons @ 0.062 opt gold.
Transvaal (Tingley, 1998)	N/R	X	--	--	--	--	X	--	N/R	No recorded production
Clarkdale (Tingley et al, 1998)	316	160	398	--	--	--	--	--	1932-1951	

TABLE 1 (cont.)
SUMMARY OF MINING DISTRICT PRODUCTION HISTORY
(Districts listed from southwest to northeast along the Caliente rail corridor)

Mining District and Sources	Ore (tons)	Gold (oz)	Silver (oz)	Copper (lbs)	Lead (lbs)	Zinc (lbs)	Mercury (flasks)	Other	Years Produced	Comments
Wagner (Tingley et al, 1998)	N/R	X	X	X	X	X	X	cobalt, nickel, thallium, others	N/R	No recorded production when mined from 1903 to 1912, but extensive exploration in the 1990s indicated a potential source of copper and other metals
Stonewall (Tingley et al, 1998)	38	16	1,165	--	--	--	--	--	1910-1916	
Cuprite (Tingley, 1998)	N/R	X	X	X	X	--	X	sulphur	N/R	No recorded production
Goldfield (Albers and Stewart, 1972; Tingley, 1998; Metallic Ventures Gold, Inc., 2005; Nevada Bureau of Mines and Geology, 2003a)	7,740,154	4,218,506	1,450,258	7,669,666	51,744	--	X	arsenic, bismuth	1903-1997	Includes 28,373 oz gold produced for years 1989 to 1997. Reserves (2003): 23.4 million tons @ 0.031 opt gold
Klondyke (Bonham and Garside, 1979)	16,606	2,406	425,583	10,861	257,080	--	--	--	1903-1932	
Ellendale (Kral, 1951; Kleinhampl and Ziony, 1984; Tingley, 1998; Nevada Bureau of Mines and Geology, 2003)	X	X	X	X	--	--	--	barite, titanium	1908-1960	18,245 tons of metalliferous ore (gold, silver, and copper) with reported value of $166,015 in production mostly from the Ellendale mine between 1908 and 1948. South Monitor deposit reserves (1997): 14 million tons @.026 opt gold and 0.12 opt silver. >17,070 tons of barite (valued at $119,500) produced mostly from the Jumbo mine between 1931 and 1960.
Golden Arrow (Kral, 1951; Cornwall, 1972; Tingley, 1998; Nevada Bureau of Mines and Geology, 2003)	>900	X	X	--	--	--	--	--	1905-1950	Golden Arrow deposit reserves (1997): 12.4 million tons @.039 opt gold

TABLE 1 (cont.)
SUMMARY OF MINING DISTRICT PRODUCTION HISTORY
(Districts listed from southwest to northeast along the Caliente rail corridor)

Mining District and Sources	Ore (tons)	Gold (oz)	Silver (oz)	Copper (lbs)	Lead (lbs)	Zinc (lbs)	Mercury (flasks)	Other	Years Produced	Comments
Clifford (Kleinhampl and Ziony, 1984; Tingley, 1998)	>3,254	X	X	--	--	--	--	arsenic	1906-1954	>$500,550 in production from Clifford mine; small or no production in years from 1954 to 1979
Tybo (Kleinhampl and Ziony, 1984; Tingley, 1998)	>597,030	X	X	X	X	X	X	antimony, barite	1867-1966	>$9,806,721 in production from several mines
Mercury Mountain (Bailey and Phoenix, 1944; Kleinhampl and Ziony, 1984)	N/R	--	--	--	--	--	298 –348 (est.)	--	1929-1960	$50,000 (est.) in production, mostly from the A&B and M&M mines
Bellehelen (Kleinhampl and Ziony, 1984; Tingley, 1998)	>5,072	X	X	X	X	--	--	vanadium, titanium	1906-1935	$216,226 from production; small or no production in years from 1935 to 1979
Eden (Kral, 1951; Cornwall, 1972; Tingley, 1998)	N/R	X	X	--	--	--	--	--	1906-1907	<$10,000 from production; no production since 1907, although exploration from 1923 to 1934 indicated gold and silver ore
Reveille (Kral, 1951; Kleinhampl and Ziony, 1984; Tingley, 1998)	~12,000	X	X	X	X	X	--	antimony, tungsten	1866-1963	>$749,129 from production; exploration and possibly some production through 1982 observed
Arrowhead	335	X	X					antimony	1920-1939	$13,449 estimated production
Queen City (Cornwall, 1972; Tingley et al., 1998)	N/R	--	X	--	X	--	82	mangan-ese	1930-1960	Recorded production is from the Black Hawk and Oswald mines
Freiberg (Tschanz and Pampeyan, 1970; Tingley, 1998)	N/R	274	2,359	--	12,600	7,600	--	tungsten	1919-1948	$18,000 from production
Sharp (Kleinhampl and Ziony, 1984; Tingley, 1998)	N/R	--	X	--	X	--	--	--	N/R	Small production since district discovered in 1918
Quinn Canyon (Papke, 1979; Kleinhampl and Ziony, 1984; Tingley, 1998)	29,500	--	--	--	--	--	--	fluorite	1945-1961	Largest concentration of fluorspar deposits in Nevada
Seaman Range (Tingley, 1998)	N/R	X	--	X	--	X	X	uranium	N/R	No recorded production

TABLE 1 (cont.)
SUMMARY OF MINING DISTRICT PRODUCTION HISTORY
(Districts listed from southwest to northeast along the Caliente rail corridor)

Mining District and Sources	Ore (tons)	Gold (oz)	Silver (oz)	Copper (lbs)	Lead (lbs)	Zinc (lbs)	Mercury (flasks)	Other	Years Produced	Comments
Ely Springs (Tschanz and Pampeyan, 1970; Tingley, 1998)	N/R	8	7,172	--	800	1,600	--	--	1951-1955	$8,400 from production
Comet (Tschanz and Pampeyan, 1970; Tingley, 1998)	N/R	1,501	233,447	74,831	2,034,381	2,411,100	--	tungsten, manganese	1895-1952	$764,100 from production
Chief (Tschanz and Pampeyan, 1970; Tingley, 1998)	N/R	2,032	10,857	2,071	45,075	--	--	vanadium	1870-1953	$93,740 from production
Panaca (Tschanz and Pampeyan, 1970; Tingley, 1998)	N/R	--	--	--	--	--	--	uranium, titanium	N/R	Low-grade; no recorded production
Little Mountain (Tschanz and Pampeyan, 1970; Tingley, 1998)	N/R	--	X	X	--	--	--	molybdenum	N/R	No recorded production

Notes
est. = estimated
lbs = pounds
N/R = Not reported
opt = ounces per ton
oz = indicates ounce
X = Indicates commodity reportedly present in unknown quantity
-- = Indicates commodity reportedly not present

The search for minerals in Nevada probably began in the mid-1800s (Tschanz and Pampeyan, 1970; Tingley et al, 1998). The discovery of the Comstock Lode in western Nevada in 1859 prompted several waves of prospecting across the state and resulted in many mineral discoveries within and near the corridor. In Lincoln County, claims were staked in the old Worthington (Freiberg), Tem Piute, Groom, Bristol, and Atlanta mining districts in the years before 1870. The now-abandoned gold camp of Delamar produced more than $14 million in gold ore, chiefly between 1895 and 1909. The Bristol mining district produced more than $3 million, principally in copper and lead, between 1878 and 1905. Mineral prospecting in the western part of southern Nye County greatly increased after the discovery of rich silver deposits at Tonopah in 1900 and Goldfield in 1902. Prospectors fanned out across the mountain ranges and playas, staking claims on precious-metal discoveries at Silverbow, Wellington, Trappmans, and Wilson camps in 1904; at Gold Reed, Tolicha (Quartz Mountain), and Gold Crater in 1905; at Transvaal in 1906; and at Jamestown in 1907 and 1908.

Wherever the initial discovery was particularly rich or well promoted as at Tonopah, Goldfield, or Beatty, a rush of miners ensued, followed closely by purveyors of food, drink, lodging and supplies (Tingley et al, 1998). Tent camps, often housing hundreds of people, developed quickly. Most camps dwindled rapidly and many were abandoned. Brief increases in populations followed new strikes of rich ore, as at Antelope Springs in 1911 and Tolicha in 1917. There was a brief surge in prospecting throughout the 1930s in and near the corridor when many unemployed workers left nearby towns to work claims in formerly abandoned mining camps. With the increase in prospecting came an increase in reports of new discoveries, and the mining camp of Clarkdale came into being in the 1930s. Minor production was reported at other older mining camps in the region.

Large parts of public land south of the corridor were withdrawn in the 1940s for the Las Vegas Bombing and Gunnery Range (renamed as the Nevada Test and Training Range) and for the Nevada Test Site (Tingley et al, 1998). These military withdrawals have curtailed prospecting and mining on several million acres of public land for more than 50 years.

Since the 1960s, mining companies have periodically explored the region containing the corridor (Tingley et al, 1998). Several of these programs have focused on areas with known mineralization, such as in the Goldfield and Golden Arrow mining districts (Nevada Bureau of

Mines and Geology, 2003). Although less common, recent exploration has focused on relatively unexplored areas including the southern part of the Reveille Valley and the south Monitor Hills (Tingley et al, 1998; Nevada Bureau of Mines and Geology, 2003). The efforts expended by mining companies to explore and develop properties are directly related to the market price of the mineral to be mined and the costs of mining.

3.2 Other Known Mineral Occurrences

In addition to the mineral deposits described in Section 3.1 and Appendix C, other mineral commodities also occur within or near the corridor. These commodities include barite, carbonate rock (limestone and dolomite), clay, decorative and dimension stone, diatomite, fluorspar/fluorite, natural aggregate (including sand and gravel), perlite, pozzolan, pumice and pumicite, silica, saline minerals, sulfur, and zeolites. Each of these commodities is described briefly below. A more complete description of these commodities and their occurrences in Nevada is contained in Appendix D (see Section D.2).

3.2.1 Barite

No known occurrences or deposits of barite lie within the corridor. Horton (1963), Kral (1951), and Tingley et al. (1998) indicate that barite deposits in Nevada lie along a trend that is coincident with the Antler orogenic belt. The most notable barite occurrence near the corridor is the Warm Springs deposit, located about 3,000 feet west of Warm Springs. Kleinhampl and Ziony (1984) report intermittent production from the Warm Springs deposit. The Warm Springs deposit is a vein-type deposit, occurring as massive, finely crystalline bodies in limestone, siltstone, and argillite. This area also contains barite as a matrix in conglomerate (Kleinhampl and Ziony, 1984).

Barite occurs in the Ellendale mining district at the Jumbo mine. While early workers (Horton, 1963; Kral, 1951) listed this as a "replacement" deposit, more recent workers have formed hypotheses (Kleinhampl and Ziony, 1984) indicating that the Jumbo barite deposit is more likely a syngenetic "bedded" type deposit. At the Jumbo mine, the barite occurs as a massive, lenticular ore body in Paleozoic rocks. Because the Jumbo mine is located approximately 3 miles northwest of the Corridor, and because similar rocks do not crop out in the corridor, the Jumbo barite deposit is not considered to affect the barite potential in the corridor.

According to Papke (1984), barite deposits in Tertiary volcanic rocks occur on the eastern side of the Goldfield mining district. Because of the small size of the barite-bearing veins, Tingley et al. (1998) did not consider it a commercially mineable deposit.

3.2.2 Carbonate Rock (Limestone and Dolomite)

Extensive outcrops of Paleozoic limestone and dolomite occur in the mountains along the central and eastern parts of the corridor. Limestone was quarried near the corridor close to Bennett Pass. Carbonate rocks are also exposed in the Bare Mountain mining district near the western terminus of the corridor. Carbonate rock exposures within the corridor have not been extensively quarried for either building or industrial use, and are therefore interpreted as occurrences.

3.2.3 Clay

The corridor and surrounding areas contain known occurrences of clay. Common clay minerals useful in construction products occur in the Pananca Formation in the eastern portion of the corridor, but commercial production has not been reported. Common clay suitable for industrial uses may also occur in the playa lakebeds that occur in parts of the corridor.

Bentonite clay is known to occur within the corridor near Scotty's Junction (Papke and Castor, 2003, Tingley, 1998). Bentonite reportedly occurs in playa deposits within and near the corridor at Sarcobatus Flats and near Beatty. Alunite clays have also been reported from hydrothermally altered rocks in the Bare Mountain mining district within and near the corridor (Cornwall, 1972).

Other deposits of clay minerals are probably present within the corridor where hydrothermally-altered volcanic rocks are present, generally in the western and far eastern portions of the corridor. However, no unique sources of high-grade clay are known to occur.

3.2.4 Decorative and Dimension Stone

No known occurrences or production of decorative or dimension stone are known from within the corridor. However, areas adjacent to and near the corridor are known to contain such occurrences. Decorative marble has been quarried from areas in the vicinity of the corridor in the Bare Mountain mining district (Tingley, 1998; Papke and Castor, 2003). These marble occurrences, however, do not project into the corridor. Deposits of Thirsty Canyon Tuff and fragmental tuff have also been mined for decorative stone near Oasis Valley northeast of Beatty. This stone has been used in some buildings at Beatty and has been sold commercially elsewhere (David Spicer, personal communication, 2004).

3.2.5 Diatomite

Diatomite is not known to occur within the corridor. About one mile east of Panaca, a diatomite deposit exists in the lacustrine Panaca Formation from which minor amounts of diatomite have been produced historically from a 6- to 10-foot-thick bed (Tschanz and Pampeyan, 1970).

3.2.6 Fluorspar/Fluorite

Fluorite deposits or occurrences are not known to occur in the corridor. Areas adjacent to and near the corridor, however, are known to contain such occurrences. Geochemical samples collected from a small prospect pit near the corridor in the eastern Goldfield mining district were found to contain minor amounts of fluorite (Tingley et al., 1998).

Elsewhere near the corridor, significant production has occurred from the Bare Mountain and the Quinn Canyon mining districts. Metallurgical-grade fluorspar was mined continuously for more than 60 years in the Bare Mountain mining district. In this district, fluorspar is associated with gold and mercury mineralization (Tingley, 1984). Nearly 30,000 tons of fluorspar ore, mainly from replacement deposits in Paleozoic limestone, were mined from numerous mines and prospects in the Quinn Canyon mining district (Papke, 1979). The geologic environments associated with the Bare Mountain and Quinn Canyon fluorspar deposits, however, are not inferred to project into the corridor. As such, these deposits are not considered to affect the fluorite potential in the corridor.

3.2.7 Natural Aggregate (including Sand and Gravel)

The corridor and surrounding areas contain vast amounts of sand and gravel, as well as large amounts of material suitable for the production of high-quality crushed stone. Large amounts of sand and gravel derived from Paleozoic carbonate highlands are available in alluvial fans in the eastern part of the corridor. The valleys and alluvial fans in the western and central parts of the corridor also contain large amounts of sand and gravel, much of which is probably sound, durable, welded ash-flow tuff. However, some structurally inferior, non-welded and bedded tuff fragments are probably also present in many areas. In addition, large areas of altered volcanic rock that contain deleterious materials such as clay minerals and reactive silica are known to occur, particularly near precious- and base-metal deposits.

Sand and gravel deposits have been mined from along US Highways 95, 93, and 6, and State Route 375, primarily by NDOT (Weitzel, 1998). Information obtained from BLM's LR2000 database indicates numerous sites in Lincoln, Nye, and Esmeralda Counties where NDOT has obtained permission to use these materials.

Numerous areas containing likely sources for crushed-rock aggregate occur within and near the corridor. A limestone quarry near Bennett Pass/Highland Peak located just outside the corridor has some minor past production. This site is believed to have been a source for carbonate-mineral smelting fluxes for use in the Highland and Bristol Range mining districts (Papke and Castor, 2003).

Volcanic cinder occurs near the corridor in the Crater Flat area in western Nye County (Papke and Castor, 2003). Volcanic cinders have been quarried from a Quaternary basaltic cinder cone about one mile north of Highway 95, southeast of Beatty.

The largest quarry in Lincoln County was the quartzite quarry in a canyon about a mile north of Caliente. The uppermost part of the Prospect Mountain Quartzite was quarried there, producing railroad ballast for the railroad and aggregate for contractors working on local construction projects (Tschanz and Pampeyan, 1970). This quarry was not in operation during the field reconnaissance of June and October 2004 (Shannon & Wilson, 2005a, b).

3.2.8 Perlite

Perlite occurs within the corridor just south of the town of Caliente (Papke and Castor, 2003; Tingley, 1998). At this location and along outcrops in Clover Valley Canyon, perlite has been produced from two adjacent deposits, probably part of a single flat-lying mass overlying a rhyolite flow. The two deposits include the Minto deposit, which is approximately 60 feet thick, and the Eccles deposit, which is approximately 150 feet thick.

The Acoma deposit, located east of the corridor, lies on or is partly covered under a dark reddish andesite. The deposit contains both "onion skin" and "sugar loaf" perlite. The deposit is reported to be more than 5,000 feet long, 2,600 feet wide, and 30 feet thick (Cochran, 1951).

3.2.9 Pozzolan

As used herein, pozzolan is a highly siliceous or siliceous and aluminous variety of pumicite that, when pulverized, will react with calcium hydroxide in the presence of water to strengthen concrete (Malhotra and Mehta, 1996). Pozzolan deposits are not known to occur within the corridor (Wilson, 2004; Fant, 1996). Several miles north of Panaca, adjacent to the northwest corner of Cathedral Gorge State Park, 8- to 15-feet-thick beds of volcanic ash altered to pozzolan are intercalated with gently dipping, lacustrine clay shale, siltstone, and sandstone of the Tertiary Panaca Formation (Wilson, 2002; Free, 2004). Pozzolan has been mined intermittently since the 1920s from the Lory Free pit, just north of Cathedral Gorge Stake Park, but to date, use of this resource has not proven to be economically feasible (Free, 2004). Permits have been issued recently to resume mining at the Lory Free pit (renamed the Portal mine) and to develop mines at a few nearby sites where pozzolan has been found since 2000 (Wilson, 2002; Free, 2004). Presently authorized pozzolan mines conflict with recreational use and proposed expansion of Cathedral Gorge State Park and could disturb paleontological sites within the park (Wilson, 2002; Free, 2004).

3.2.10 Pumice and Pumicite

Occurrences or deposits of pumice and pumicite are not known to occur within the corridor. Pumice and pumicite are known to occur near the corridor at Beatty, near Panaca (Papke and Castor, 2003; Tingley et al., 1998), and in the Bare Mountain mining district (Cornwall, 1972).

3.2.11 Saline Minerals

Known production of saline minerals has not been reported from the corridor (Papke and Castor, 2003; Tingley, 1998; Papke, 1976; Kleinhampl and Ziony, 1984; Albers and Stewart, 1972; Cornwall, 1972; Tschanz and Pampeyan, 1970). The several playas that occur within the corridor (Mud Lake and small playas in Sarcobatus Flat, Stonewall Flat, Alkali Flat, and Dry Lake Valley) are not known to contain commercial deposits of saline minerals.

Historical production of sodium minerals, primarily as halite, has occurred in the vicinity of the corridor. A significant amount of by-product halite has been produced from the lithium-brine operation at Silver Peak Marsh in Esmeralda County 20 miles west of Goldfield (Albers and Stewart, 1972; Papke, 1976). Elsewhere in Esmeralda County, Tingley (1998) and Papke (1972) report a halite occurrence in Alkali Spring Valley, about 15 miles southwest of Tonopah. Papke (1976) reports limited production of halite from Butterfield Flat in Railroad Valley 25 miles north of the corridor. Butterfield Flat also has a large deposit of gaylussite at depths exceeding 660 feet, as substantiated by data from petroleum exploration wells (Kleinhampl and Ziony, 1984).

In the playas within the corridor and elsewhere in Nevada, sodium minerals are more common and occur in more variety than do potassium minerals (Papke, 1976). Sylvite was reported as a minor evaporite mineral at Silver Peak Marsh by Papke (1976), but Alan R. Buehler, the supervisory geologist at BLM's Tonopah Field Office, indicates (written communication, 2005) that salt stockpiles from this mining district contain major quantities of sylvite. Kleinhampl and Ziony (1984) reported minor amounts of potassium in brines discharged from drill holes and sylvite in surface salt encrustations at Butterfield Marsh in Railroad Valley.

3.2.12 Silica

Silica occurs within and near the corridor. Ceramic-grade silica has been mined from the Bare Mountain mining district (silicon mine) near Beatty (Papke and Castor, 2003; Tingley, 1998). Lump silica, which is useful for metallurgical fluxes, has been produced from the Cuprite mining district near Stonewall Flat (Tingley et al., 1998).

A large volume of silica-rich rock exists in the corridor and nearby areas, generally as replacement deposits in the silicic volcanic rocks of the western and far eastern portions of the corridor. These rocks were formed by nearly complete replacement of rhyolite by hydrothermal alteration quartz. Because of this origin, these rocks probably contain too much alumina for commercial silica (Tingley, 1998).

3.2.13 Sulfur

Sulfur occurs within the corridor near the northeastern end of the Cuprite mining district (Albers and Stewart, 1972). Mineralization consists of gold-bearing veins in Tertiary rhyolite and native sulfur in altered Tertiary tuffaceous sedimentary rocks and welded tuffs. A few shipments of sulfur were made before 1909, and a considerable number since 1909 (Lincoln, 1923). Field reconnaissance in this area found evidence of recent mining claims, trenching, and drilling.

3.2.14 Zeolites

Occurrences and deposits of zeolite minerals are known to occur within and near the corridor. Zeolite minerals are not chemically stable over long periods of geologic time, and economically valuable zeolite deposits older than Cretaceous in age are unlikely (Olson, 1994). Zeolite deposits are common in Nevada. While known closed-system-type deposits are generally confined to north-central Nevada, several open-system-type deposits are located in or near the corridor in southern Nevada.

Numerous open-system-type zeolite deposits exist in altered Pliocene ash-flow tuffs near the town of Beatty, near Beatty Wash, and along Silicon Mine Road 5 miles northeast of Beatty. Other zeolite occurrences in the Beatty area include similar ash-flow tuff deposits in the Bullfrog, Transvaal, and Bare Mountain mining districts. Elsewhere near the corridor, zeolite deposits occur south of Caliente and in the Goldfield mining district.

3.3 Oil and Gas

No producing oil and gas wells lie within the corridor. The nearest producing areas are the 10 small oil fields in Railroad Valley in northeastern Nye County (see Plate 2). Production in Railroad Valley began in 1954, with the most recent discovery in 1998 (Davis, 2003). Total production from these fields through 2003 was almost 43 million barrels, which amounts to about 88 percent of the total oil production in Nevada (Davis, 2003). Only a very small amount of by-product natural gas has been produced from Nevada's oil wells through 2003 (Energy Information Administration, 2005).

Only one exploratory hole has been drilled within the corridor. Drilled in 1986 in northern Lincoln County, Amoco Production Company Garden Valley No. 1 reached a depth of 6,401 feet and was dry (Hess, 2004). Several other dry holes have been drilled near the corridor in northeastern Nye and northern Lincoln Counties (see Plate 2).

Several active and pending oil and gas leases exist within and near the corridor. The locations of these leases are shown in Plate 2. A more complete description of oil and gas in Nevada is contained in Appendix D (see Section D.3).

3.4 Geothermal Energy

Geothermal features within and near the corridor are illustrated in Plate 3. The following paragraphs, derived largely from Shevenell and Garside (2003), describe the most important thermal features in this region.

Beatty Warm Springs – Numerous warm springs occur near Beatty. The springs form a trend that is parallel to U.S. Highway 95 north of Beatty and approximately 1 to 2 miles west of the corridor. Hick's Hot Springs, located 5 miles north of Beatty, are the hottest thermal features in this area. These springs have reported temperatures of up to 47.2°C, and are used for hot-spring bathing pools. They flow from alluvium near a contact with altered welded tuff. Mariner et al. (1983) estimated a reservoir temperature of 72ºC for Hick's Hot Springs. The Revert Hot Springs are located about 1.5 miles north of Beatty and are the municipal water source for the town of Beatty; water temperature is 23.8°C.

Sarcobatus Flat and Scotty's Junction – Several thermal springs are located in Sarcobatus Flat parallel to U.S. Highway 95 south of Scotty's Junction. The springs are about 22°C, which is about 9°C higher than mean groundwater temperature in the area. While surface springwater temperatures do not necessarily indicate a geothermal heat source at depth, a single hot well, with a temperature of 42°C, was drilled at the south end of Sarcobatus Flat.

Stonewall Flat – Several heat-flow wells have been drilled in the vicinity of Stonewall Flat. Data from these wells indicate a geothermal gradient in this area of about 100°C per km.

Hot Springs West of Routes 6 and 25 (Warm Springs) – Thermal springs with temperatures up to 61°C occur at the southern end of the Hot Creek Range, just east of the range-bounding fault. The springs issue from alluvium and form a 20-foot-high travertine terrace. The high concentration of dissolved carbonate in the water is probably due to subsurface circulation through brecciated carbonate rock near and along the range-bounding fault.

Pedro Spring – Several thermal springs occur in the Pedro Spring area in northern Nye County about 12 miles south of Warm Springs Summit on the eastern flank of the Kawich Range. The highest reported temperature is 28.9°C at Reveille Mill spring (Shevenell and Garside, 2003).

Cedar Spring – Thermal springs with a temperature of about 25°C occur about 30 miles south-southeast of Warm Springs Summit on the east flank of the Kawich Range.

Bennett Spring – Bennett Spring is located 10 miles north of Caliente in the southern Highland Range. Shevenell and Garside (2003) report a water temperature of the spring of 24°C.

Caliente Warm Springs – Shevenell and Garside (2003) report water temperatures of 37.7°C to 62°C from the Caliente Warm Springs. Water from the springs is used in direct applications, including bathing pools in Caliente and a heat pump in the Lincoln County hospital. The springs apparently issue along faults (Garside, 1994; Shevenell and Garside, 2003). In addition to the springs, this area has several geothermal wells with water temperatures up to 97°C. The town of Caliente uses three wells located north and west of the town for its municipal water supply.

Panaca (Owl Warm Springs) – Panaca Warm Spring is located just north of the town of Panaca and has a temperature of about 30°C. The spring issues from a fault displacing Paleozoic limestone against alluvium. The town of Panaca uses water from this spring as a public water supply and to fill a public bathing pool. Several warm wells also occur in the vicinity of Panaca Warm Springs (Shevenell and Garside, 2003).

A single *Known Geothermal Resource Area* exists within the corridor near Warm Springs Summit (see BLM Manual 3021 for information about *Known Geothermal Resource Areas*). No active or pending BLM geothermal leases occur within the corridor. Use of geothermal resources within the region is limited to direct application in hot-spring pools and space-heating applications at Beatty and Caliente (Shevenell and Garside, 2003). Relative to the corridor, the nearest commercial geothermal power generation facility is located in Lyon County 150 miles northwest of Tonopah.

3.5 Uranium

No uranium occurrences or deposits are known within the corridor. Garside (1973) reports several occurrences near the corridor in the vicinity of Panaca, Caliente, and the Bare Mountain mining districts.

Near the town of Panaca, the uranium-bearing mineral carnotite occurs in flat-lying lacustrine tuff layers of the Pliocene Panaca Formation. The carnotite occurs in carbonaceous plant remains, as coatings along joint surfaces and mud cracks, and as small, irregularly shaped disseminations (Garside, 1973). Slightly anomalous radioactivity also occurs in a green opalized tuff in the same area.

North of Caliente, slightly anomalous radioactivity occurs in a lens of porphyritic diorite that parallels an oxidized copper-gold vein in the Cambrian Prospect Mountain Quartzite. In southern Nye County, anomalous uranium values are reported from the Wagner mining district. The uranium occurrences in the Wagner mining district are associated with porphyry-copper-style mineralization and polymetallic veins (Tingley et al., 1998). Anomalous radioactivity associated with fractures and fault breccias in Tertiary rhyolite and rhyolitic ash-flow tuffs has been reported in the Bullfrog mining district, the Bare Mountain mining district, and also in southern Nye County. In the Bare Mountain district, purple earthy fluorite in a series of pipes, irregular bodies, and veins hosted by Cambrian dolomite are reported. Ore solutions here are believed to have been derived from a nearby chamber of a Tertiary rhyolite magma that also erupted a considerable volume of flows, ash-flows, and tuff (Garside, 1973).

Playas in Nevada have been the source for numerous evaporitic minerals and brines, and may have the potential to contain uranium (Papke, 1976).

A more complete description of uranium occurrences in Nevada is contained in Appendix D (see Section D.4).

3.6 Gemstones

The term *gemstone* is applied to any precious or semi-precious stone, especially when it is cut or polished for ornamental purposes. Turquoise is the only gemstone known to occur within the corridor. Turquoise forms as a secondary mineral usually within 100 feet of the surface.

Leached outcrops of disseminated copper and molybdenum may contain turquoise, and its value as an ore guide is well known to exploration geologists (Morrissey, 1968). A turquoise occurrence with possible minor production is located within the corridor, just north of U.S. Highway 6 at Warm Springs, in W1/2 Sec. 30, T4N, R50E (Alan Buehler, BLM, written communication, 2005).

Iron-stained and banded chalcedonic quartz, commonly known as chalcedony, has been collected for many years from a deposit west of Goldfield near the corridor. The material occurs as tabular quartz-rich zones, or ledges, associated with advanced silicification and alteration of rhyodacites and andesites. Although locally referred to as "gem" chalcedony, the material is generally not recognized as a true gemstone, and as such, the potential for chalcedony is not considered within the corridor.

4.0 POTENTIAL FOR UNDISCOVERED MINERAL AND ENERGY RESOURCES

This chapter contains the *mineral potential* and *certainty* ratings—and the basis for these ratings—that have been assigned to the mineral and energy commodities assessed in this report. The assignment of mineral-potential rating to an area for a certain mineral or energy commodity is a *prediction* of the likelihood of the occurrence of a mineral resource. This prediction does not imply that the resource actually exists in concentrations that are economically extractable or even potentially extractable, nor does it imply that the quality and quantity of the resource are known.

To increase the confidence in these predictions, mineral- and energy-deposit models are applied, as applicable, to the geologic characteristics of the area(s) being assessed (these models, and their geologic characteristics, are described in Appendix D). Because it is unlikely that all of the geologic characteristics of a particular deposit model will be present in the area(s) being assessed, professional judgment is used to determine whether the application of a particular model is reasonable. When the geologic conditions in an area being assessed are judged to "fit" or partly fit a model, they define a favorable geologic environment. Factors used to determine a favorable geologic environment for a particular deposit model include, among other things, suitable rock types and structures, evidence of rock alteration (or lack thereof for certain types of mineral accumulations), geochemical and geophysical evidence, evidence from mineral occurrences, and thermal-maturity data for oil and gas resources.

Once the favorability of the geologic environment has been estimated, the area is assigned a specific level of *potential* for the occurrence of a mineral resource. These levels are "H" for high potential, "M" for moderate potential, "L" for low potential, and "O" for no potential. Each rating of *potential* is accompanied by the estimated confidence in this rating. This second rating is referred to as the *level of certainty*. The *level of certainty* is a subjective measure of the amount, quality, and abundance of data supporting the rating of *potential*. *Certainty* is indicated by the symbol A (insufficient evidence), B (indirect evidence), C (direct evidence), or D (abundant direct and indirect evidence) (see the rating classification system on the legend in Plate 1).

The assigned mineral-potential ratings for the proposed land withdrawal are shown in Plate 1 for metallic minerals, in Plate 2 for oil and gas, and in Plate 3 for geothermal resources. Mineral-potential ratings and associated certainty levels for other mineral commodities assessed in this report are illustrated in 16 separate figures in Appendix E. The remainder of this chapter describes the rationale for the assigned ratings.

4.1 Metallic Minerals Potential

Assessment of the potential for metallic mineral resources was based in large measure on the judged geologic similarities between the area being assessed and the geologic attributes of the mineral-deposit models described in Appendix D (Section D.1). Each area was then assigned a *potential/certainty* rating following the process described in Section 4.0.

The potential for metallic minerals was not ranked by specific commodity (e.g., gold, silver, and copper) or by type of deposit model (see Appendix D). Instead, the metallic mineral potential of a particular tract of land was estimated by determining the degree to which it contains (a) suitable plutonic rocks and (b) suitable epithermal systems that are associated with certain mineral-deposit models. Table 2 categorizes the deposit models that are associated with plutonic rocks (primarily base-metal deposits) and those associated with epithermal systems (primarily precious-metal deposits).

TABLE 2
SUMMARY OF METALLIC MINERAL DEPOSIT MODELS

Deposits Associated with Plutonic Rocks	Deposits Related to Epithermal Systems
Tungsten Skarn Deposits	Hot Springs Gold-silver Deposits
Porphyry Copper & Porphyry Copper-Molybdenum Deposits	Comstock Epithermal (Quartz-Adularia) Vein Deposits (low-sulfidation)
Copper Skarn Deposits	Epithermal Quartz-alunite Deposits (high sulfidation)
Zinc-lead Skarn Deposits	Volcanogenic Uranium Deposits
Iron Skarn Deposits	Sediment-hosted Gold-silver Deposits (uncertain association)
Polymetallic Replacement Deposits	Hot Springs Mercury Deposits
Replacement Manganese Deposits	Simple Antimony Deposits
Distal-disseminated Silver-gold Deposits	
Polymetallic Vein Deposits	

The mineral-deposit models associated with plutonic rocks include deposits for which a genetic relation with an igneous intrusion can be inferred (described further in Singer, 1996). A favorable environment is considered to extend 10 km laterally from a pluton, or from the inferred subsurface boundary of the pluton. It also includes areas around inferred plutons based on geophysical data or the occurrence of skarn mineralization. In general, favorable terrain deeper than 1 km below the surface is not considered in the assessment.

The mineral-deposit models associated with epithermal systems include deposits associated with volcanic rocks, the distribution of synvolcanic faults, and patterns of magnetic anomalies (described further in Singer, 1996).

If other studies have previously assessed the mineral potential of parts of the corridor, those studies were considered in this report and, in many cases, adopted. Similarly, if an area near the corridor was previously assessed, and the geologic characteristics of the assessed area could be reasonably extrapolated to exist in the corridor, that assessment was considered in this report and, in many cases, adopted.

The corridor was segmented into 41 areas for assessing metallic mineral potential (Plate 1). Two potential/certainty ratings were assigned to each of the 41 areas, one for metallic mineral deposits associated with plutonic rocks and a second for metallic mineral deposits associated with epithermal systems. The two potential/certainty ratings assigned to each type of deposit apply to the entire area, even though some of the terrain within an area may have little or no potential for metallic mineral deposits. Hence, the two potential ratings assigned to each area represent the highest rating assigned to any part of that area. The rationale for the potential/certainty ratings assigned to each of the 41 areas is discussed below.

AREA 1 – Area 1 is about 3 miles east of the Bare Mountain mining district. Volcanic rocks are inferred to exist in the subsurface to depths greater than 1 km (Shannon & Wilson, 2005c, Plate 3, cross-section 2; Potter et al, 2002). Bedrock exposed at the surface and encountered in boreholes consists mostly of nonwelded to densely welded rhyolite to rhyodacite ash-flow tuffs of the Miocene (11.45-14.2 Ma) Timber Mountain, Paintbrush, Crater Flat, and Tram Ridge Groups and the Calico Hills Formation (Shannon & Wilson, 2005c; 2005d). These volcanic rocks erupted mostly from the Silent Canyon, Timber Mountain, and Claim Canyon Caldera Complexes, located just north and east of the corridor (Warren et al., 1998; Laczniak et al., 1996). Quaternary-Tertiary basalt flows occur in the subsurface of Jackass Flat and Crater Flat and flank cinder cones in Crater Flat within and near the corridor (Shannon & Wilson, 2005c; Slate et al., 1999). Quaternary fan and wash alluvium and eolian deposits cover more than 50 percent of the surface area (Plate 4). High-angle, predominantly north- to north-northeast-striking faults offset bedrock and alluvium at Yucca Mountain and in Crater Flat (Shannon & Wilson, 2005c, 2005d; Simonds et al., 1995).

Potential/Certainty for Metallic Minerals Associated with Plutonic Rocks: L/D. A low (L) potential for pluton-related metallic-mineral deposits was assigned to Area 1, because there are no known occurrences of metallic mineral deposits associated with plutonic rocks in this area. A high (D) certainty is associated with the assigned potential rating, because map, borehole, and geophysical data provide abundant direct and indirect evidence that plutons do not occur at or near the land surface in Area 1.

Potential/Certainty for Metallic Minerals Associated with Epithermal Systems: L/B. A low (L) potential for metallic-mineral deposits associated with epithermal systems was assigned to Area 1, because there are no known occurrences of epithermal metallic-mineral deposits in this area. A low (B) certainty is associated with the assigned potential rating, because there is indirect evidence to support a potentially favorable geologic environment for these resources. The numerous faults cutting the tuffaceous rocks underlying most of Area 1 might have acted as conduits for the rise of solutions containing metallic minerals that were emplaced subsequently in fracture-controlled zones adjacent to the faults.

AREA 2 – Area 2 is about 2 miles east of the Bare Mountain mining district. The area is largely covered by Quaternary alluvium, but the Miocene (11.7 Ma) Rhyolite of Fluorspar Canyon, which consists of nonwelded ash-fall tuff, crops out within the area, and a Quaternary basalt cinder cone rises just east of the area (Shannon & Wilson, 2005c, Figure 3). High-angle, predominantly north- to north-northeast-striking faults offset bedrock and alluvium (Shannon & Wilson, 2005c; Simonds et al., 1995).Volcanic rocks are inferred to exist to depths greater than 1 km (Shannon & Wilson, 2005c, Plate 3, cross-section 2; Potter et al, 2002).

Potential/Certainty for Metallic Minerals Associated with Plutonic Rocks: L/D. A low (L) potential for pluton-related metallic-mineral deposits was assigned to Area 2, because there are no known occurrences of metallic-mineral deposits associated with plutonic rocks in this area. A high (D) certainty is associated with the assigned potential rating, because map, borehole, and geophysical data provide abundant direct and indirect evidence that plutons are not present at or near the land surface in Area 2.

Potential/Certainty for Metallic Minerals Associated with Epithermal Systems: L/B. A low (L) potential for metallic-mineral deposits associated with epithermal systems was assigned to Area 2, because there are no known occurrences of epithermal metallic-mineral deposits in this area. A low (B) certainty is associated with the assigned potential rating, because there is indirect evidence to support a potentially favorable geologic environment for these resources. The numerous faults cutting the tuffaceous rocks underlying most of Area 2 might have acted as conduits for the rise of solutions containing metallic minerals that were emplaced subsequently in fracture-controlled zones adjacent to the faults.

AREA 3 – Area 3 encompasses the northernmost part of Crater Flat, Tram Ridge (a western extension of Yucca Mountain), and the eastern part of Oasis Valley (Shannon & Wilson, 2005c, table 5 and fig. 3). Bordered by high-angle faults responsible for the uplift of Yucca Mountain on the east and Bare Mountain on the west, Crater Flat is a graben (Shannon & Wilson, 2005c, Plate 3, cross-section 2). Where the corridor crosses Crater Flat, outcrops of the Miocene

Rhyolite of Fluorspar Canyon, Tertiary landslide deposits, and Pleistocene fan alluvium are present (Potter et al., 2002). In the subsurface, the Tertiary volcanic rocks thicken westward and are as much as 13,000 feet thick against the Bare Mountain Fault. At Tram Ridge, a domal uplift, the corridor crosses fault blocks of the Miocene Timber Mountain, Paintbrush, and Crater Flat Groups, in which the volcanic rocks are as much as 5,000 feet thick (Fridrich et al., 1999b). In the same structural block as Bare Mountain, the Tertiary volcanic rocks forming Tram Ridge are separated from the Paleozoic sedimentary rocks forming Bare Mountain by the high-angle, northeast-striking Tate's Wash Fault (Fridrich et al, 1999a). In eastern Oasis Valley, the corridor mostly traverses poorly consolidated Tertiary sedimentary rocks and Quaternary alluvium, but partially to densely welded, rhyolite to rhyodacite ash-flow tuffs and lava flows of the Miocene (10.3-11.7 Ma) Timber Mountain Group and Volcanics of Fortymile Canyon crop out in the Hogback on the east side of the ephemeral Amargosa River (Fridrich et al., 1999b). East of the Hogback, which was uplifted along the Hogback Fault, as much as 800 feet of Tertiary sedimentary rocks overlie up to 8,000 feet of Tertiary volcanic rocks near the corridor (Fridrich et al., 1999b, cross-section A-A'). Batholithic intrusions are inferred from gravity data and limited outcrops to underlie the Tertiary volcanic rocks in Oasis Valley and at Tram Ridge and the Paleozoic sedimentary rocks at Bare Mountain (Fridrich et al., 1999b).

Potential/Certainty for Metallic Minerals Associated with Plutonic Rocks: L/C. A low (L) potential for pluton-related metallic-mineral deposits was assigned to Area 3, because there are no known occurrences of metallic minerals associated with plutonic rocks in this area. A moderate (C) certainty is associated with the assigned potential rating, because there is indirect evidence that plutonic rocks exist within Area 3. This evidence includes inferences from mapping and gravity modeling that plutons exist beneath Bare Mountain, Tram Ridge, and eastern Oasis Valley at depths of <2.5 miles. Hydrothermal solutions could have deposited metallic minerals in plutons and surrounding rocks.

Potential/Certainty for Metallic Minerals Associated with Epithermal Systems: H/D. A high (H) potential for metallic-mineral deposits related to epithermal systems was assigned to Area 3 because of known production from mines excavated in epithermal deposits within this area and the application of metallic-mineral deposit models described by Singer (1996) to this area. The corridor crosses the northeast corner of the Bare Mountain mining district (Plate 1), where the district is underlain entirely by Tertiary volcanic rocks. Although most production from this district has occurred from Paleozoic sedimentary rocks cropping out at Bare Mountain (see Appendix C for discussions of the Daisy and Sterling mines), the Thompson mine and numerous prospects are located in the volcanic rocks where they are oxidized, hydrothermally altered, and extensively fractured in fault zones (Shannon & Wilson, 2005a, Appendix, v. 1). The Thompson mine, on Tram Ridge, produced small amounts of mercury from cinnabar seams and spheres in silicified and opalized, rhyolitic ash-fall tuff prior to 1944 (Cornwall, 1972). The mine was inactive when visited in July 2004 (Shannon & Wilson, 2005a, Appendix, v. 1). A high (D) certainty is associated with the assigned potential rating because of abundant direct and indirect evidence in support of this rating. Evidence includes the Thompson mine, the mapped occurrence of geologic conditions similar to those at the mine throughout Tram Ridge, and hot springs, indicative of a buried heat source, that issue between Beatty and Springdale, not far from Area 3 (see Reiner et al., 2002, and Fridrich et al., 1999a, for discussions of these springs).

AREA 4 – Extending from the Amargosa River channel to the topographic divide with Sarcobatus Flat, Area 4 includes the western part of Oasis Valley and the northeast edge of Oasis Mountain, the easternmost feature of the Bullfrog Hills (Shannon & Wilson, 2005c, table 5 and fig. 3). In Oasis Valley, a thin (<3,000-foot-thick) section of Miocene and Oligocene volcanic rocks and landslide breccias capped by Tertiary sedimentary rocks and Quaternary alluvium unconformably overlies latest Proterozoic to late Paleozoic limestone, dolomite, argillite, and quartzite (Shannon & Wilson, 2005c, Plate 3, cross-section 2; Fridrich et al., 1999b; Slate et al., 1999). Partially to densely welded, rhyolite to rhyodacite ash-flow tuffs and lava flows of the Miocene (10.3 to 11.7 Ma) Timber Mountain Group and Volcanics of Fortymile Canyon crop out at Oasis Mountain (Fridrich et al, 1999b).

Potential/Certainty for Metallic Minerals Associated with Plutonic Rocks: L/D. A low (L) potential for pluton-related metallic-mineral deposits was assigned to Area 4, because there are no known occurrences of metallic-mineral deposits associated with plutonic rocks in this area. A high (D) certainty is associated with the assigned potential rating, because there is indirect evidence in support of this rating. Gravity modeling indicates that Late Proterozoic and Paleozoic sedimentary rocks underlie outcropping Tertiary volcanic and sedimentary rocks in Area 4 to a depth of at least 20,000 feet below the land surface (Fridrich et al., 1999b, cross-section B-B').

Potential/Certainty for Metallic Minerals Associated with Epithermal Systems: M/C. A moderate (M) potential for metallic-mineral deposits related to epithermal systems was assigned to Area 4, because epithermal metallic-mineral deposits are known to occur near the corridor, and metallic-mineral deposit models described by Singer (1996) are applicable to this area. The corridor crosses the northeast corner of the Bullfrog mining district (Plate 1; Cornwall, 1972). Mines in this district generally produced disseminated gold and silver from quartz-calcite-pyrite veins in rhyolitic, welded ash-flow tuffs cut by steeply dipping normal faults (Cornwall, 1972). Although most of the historic mining activity in this district occurred >5 miles from the rail corridor, a prospect trench, pits, and tailings dumps were observed in July 2004 on the north side of Oasis Mountain, about 1 mile southwest of the corridor (Shannon & Wilson, 2005a, Appendix, v. 1). At this site, minor mineralization in altered tuff appeared to be related to a northeast-trending shear zone. A moderate (C) certainty is associated with the assigned potential rating because there is some direct and indirect evidence in support of this rating. This evidence includes the extrapolation of the mineral occurrence discussed above along strike toward the rail corridor, the existence of tuff in the subsurface of Oasis Mountain and Oasis Valley similar to mineralized host rocks in the Bullfrog District, and hot springs, indicative of a buried heat source, that issue between Beatty and Springdale, not far from Area 4 (see Reiner et al., 2002, and Fridrich et al., 1999a, for discussions of these springs).

AREA 5 – Area 5 extends from the northwest corner of Oasis Valley into the eastern edge of Sarcobatus Flat (Shannon & Wilson, 2005c, table 5 and fig. 3). The area is underlain by poorly consolidated Tertiary sandstone and conglomerate and early Pleistocene to Holocene fan alluvium, which are dissected by washes containing Holocene channel alluvium (Fridrich et al., 1999b).

Potential/Certainty for Metallic Minerals Associated with Plutonic Rocks: L/C. A low (L) potential for pluton-related metallic-mineral deposits was assigned to Area 5, because there are no known occurrences of metallic mineral deposits associated with plutonic rocks in this area. A high (D) certainty is associated with the assigned potential rating, because there is indirect evidence in support of this rating. Gravity modeling indicates that plutonic rocks are not likely to occur within thousands of feet of the land surface in Area 5 (Fridrich et al., 1999b, cross-section B-B').

Potential/Certainty for Metallic Minerals Associated with Epithermal Systems: L/D. A low (L) potential for metallic-mineral deposits related to epithermal systems was assigned to Area 5, because there are no known occurrences of epithermal metallic-mineral deposits in this area. A high (D) certainty is associated with the assigned potential rating, because there is no evidence to support the possible existence of these resources in Area 5.

AREA 6 – Area 6 is located almost entirely within Sarcobatus Flat, although the southern edge of the area abuts Springdale Mountain, the northernmost of the Bullfrog Hills (Shannon & Wilson, 2005c, table 5 and fig. 3). In Sarcobatus Flat, the corridor mostly crosses Holocene alluvium veneering a Pleistocene alluvial fan that slopes southwest from Pahute Mesa (Workman et al., 2002). Locally, the corridor crosses closed depressions filled with Quaternary eolian and playa deposits. At Springdale Mountain, mostly rhyolite, trachyte, dacite, and andesite lava flows of the Miocene (9.3 to 10.4 Ma) Trachyte of Donovan Mountain, Rhyolite of Springdale Mountain, and Andesite of Sarcobatus Flat are exposed (Fridrich et al., 1999b; Slate et al., 1999).

Potential/Certainty for Metallic Minerals Associated with Plutonic Rocks: L/C. A low (L) potential for pluton-related metallic-mineral deposits was assigned to Area 6, because there are known occurrences of metallic-mineral deposits associated with plutonic rocks in this area. A moderate (C) certainty is associated with the assigned potential rating, because indirect evidence supports a potentially favorable geologic environment for plutonic or epithermal metallic-mineral deposits. A well in southeastern Sarcobatus Flat discharges warm (42°C) water (plate 3), and Pliocene (4.6 Ma) basalt flows form the Thirsty Mountain shield volcano just northeast of Sarcobatus Flat (Plate 4).

Potential/Certainty for Metallic Minerals Associated with Epithermal Systems: L/C. A low (L) potential for metallic-mineral deposits related to epithermal systems was assigned to Area 6, because there are no known occurrences of epithermal metallic-mineral deposits in this area. A moderate (C) certainty is associated with the assigned potential rating, because indirect evidence supports a potentially favorable geologic environment for plutonic or epithermal metallic-mineral deposits. A well in southeastern Sarcobatus Flat discharges warm (42°C) water (plate 3), and Pliocene (4.6 Ma) basalt flows form the Thirsty Mountain shield volcano just northeast of Sarcobatus Flat (Plate 4).

AREA 7 – Area 7 is located entirely in Sarcobatus Flat (Shannon & Wilson, 2005c, table 5 and fig. 3). Southeast of Coba Mountain, the corridor mostly crosses Holocene and late Pleistocene fan alluvium, but fine-grained Quaternary playa sediments are present in topographic depressions (Slate et al., 1999). Coba Mountain, which is flanked at the land surface by Quaternary eolian sand ramps, is formed by the Miocene (9.6 to 9.9 Ma) Basalt of Black Mountain (Slate et al., 1999). These same basalt flows, bordered by welded, trachytic ash-flow tuff of the Miocene (11.45 to 11.7 Ma) Timber Mountain Group, form a southward-extending prong of Pahute Mesa north of where Coba Mountain terminates. Northwest of Coba Mountain, Sarcobatus Flat is dominated by early and middle Pleistocene alluvial fans sloping southwest from Pahute Mesa (Workman et al., 2002).

Potential/Certainty for Metallic Minerals Associated with Plutonic Rocks: L/C. A low (L) potential for pluton-related metallic-mineral deposits was assigned to Area 7, because there are no known occurrences of metallic-mineral deposits associated with plutonic rocks in this area. A moderate (C) certainty is associated with the assigned potential rating because indirect evidence supports a potentially favorable geologic environment for plutonic or epithermal metallic-mineral deposits. Basalt flows in Area 7 that erupted from the Black Mountain Caldera, to the north, might have been associated with an intrusive body and mineralizing solutions at depth.

Potential/Certainty for Metallic Minerals Associated with Epithermal Systems: L/C. A low (L) potential for metallic-mineral deposits related to epithermal systems was assigned to Area 7, because there are no known occurrences of epithermal metallic-mineral deposits in this area. A moderate (C) certainty is associated with the assigned potential rating, because indirect evidence supports a potentially favorable geologic environment for plutonic or epithermal metallic-mineral deposits. Basalt flows in Area 7 that erupted from the Black Mountain Caldera, to the north, might have been associated with an intrusive body and mineralizing solutions at depth.

AREA 8 – Most of Area 8 is located in Sarcobatus Flat, but its eastern edge abuts Pahute Mesa (Shannon & Wilson, 2005c, table 5 and fig. 3). The land surface of Area 8 is dominated by early and middle Pleistocene alluvial fans that slope southwest from Pahute Mesa (Workman et al., 2002). In the center of Area 8, Tolicha Wash emerges from a canyon incised into Pahute Mesa and terminates in a Holocene to late Pleistocene alluvial fan. Alluvium filling the channel of Tolicha Wash also is Holocene to late Pleistocene in age (Workman et al., 2002). Pahute Mesa within and adjacent to Area 8 is underlain mostly by rhyolitic to trachytic, welded ash-flow tuff of the Miocene (11.45 to 11.7 Ma) Timber Mountain Group and andesite to basalt lava flows of the Miocene (9.3 Ma) Andesite of Sarcobatus Flat (Slate et al., 1999; Minor et al., 1993). These volcanic rocks are overlain locally by Miocene conglomerate, sandstone, and siltstone, intruded by plugs of porphyritic rhyolite and rhyolite breccia, and cut by predominantly north-northeast- to north-northwest-striking, high-angle faults (Tingley et al., 1998; Minor et al., 1993).

Potential/Certainty for Metallic Minerals Associated with Plutonic Rocks: M/B. Tingley et al. (1998) estimated a moderate (M) potential for bulk-mineable gold-silver deposits and disseminated precious metal deposits in the vicinity of argillized domes, dikes, and plugs in and near Area 8 and assigned a low (B) certainty level to this estimate. Tingley et al. (1998) estimated a moderate resource potential in areas where geologic, geochemical, and geophysical data and mineral-deposit models indicate a reasonable likelihood of finding a geologic environment favorable for resource occurrence. Although Area 8 crosses the southern edge of the Clarkdale mining district (Plate 1), no ore bodies in intrusive rocks have been discovered in the area of overlap, and finding mineral deposits in small intrusive bodies buried at unknown depths can be expected to require extensive exploration.

Potential/Certainty for Metallic Minerals Associated with Epithermal Systems: H/C. Tingley et al. (1998) estimated a high (H) potential for finding small-tonnage, bonanza-vein, gold-silver deposits in and near Area 8 and assigned a moderate (C) certainty level to this estimate. Tingley et al. (1998) estimated a high resource potential in areas where geologic, geochemical, and geophysical data and mineral-deposit models indicate a high likelihood of finding a geologic environment favorable for resource occurrence. The corridor crosses the southern edge of the Clarkdale mining district (Plate 1). Two mines in this district, the Clarkdale and Yellow Gold mines, produced most of the ore from this district, but shallow shafts, short adits, and numerous shallow pits are scattered between the Clarkdale and Yellow Gold mines, on ridges south and southwest of the Yellow Gold mine, and in a valley southwest of the Yellow Gold mine (Tingley et al., 1998). From 1932 to 1951, the district is known to have produced 316 tons of ore yielding 160 ounces of gold and 398 ounces of silver (Tingley et al., 1998; Cornwall, 1972). Both the Clarkdale and Yellow Gold mine workings are situated along quartz-calcite and quartz-calcite-barite veins and breccias in steeply dipping fault zones that cut hydrothermally altered Tertiary sedimentary and intrusive rocks and ash-flow tuff of the Timber Mountain Group (Tingley et al., 1998). Quartz and calcite veins, silicified fractures, faults, and hydrothermal alteration extend from the mine workings nearly to U.S. 95; the ridge northwest of Tolicha Wash is composed of extensively argillized tuff of the Timber Mountain Group underlain or intruded by a dome or plug of locally silicified and feldspathized, porphyritic rhyolite (Tingley et al., 1998).

AREA 9 – Area 9 is located almost entirely within Sarcobatus Flat, but it abuts Pahute Mesa on its east side and includes on its north side part of the hills that form a drainage divide with Lida Valley (Shannon & Wilson, 2005c, table 5 and fig. 3). The land surface is dominated by Holocene to Pleistocene alluvial fans sloping southwest from Pahute Mesa and northeast from Gold Mountain and Slate Ridge (Plate 4; Workman et al., 2002). Washes containing Holocene to Pleistocene alluvium are incised prominently into alluvial fans across the north-central part of the area. Quaternary fine-grained playa and playa-apron sediments occupy a topographic depression in the southwest corner of the area and occur on the south side of the Sarcobatus Flat/Lida Valley drainage divide. Faulted, rhyolitic, nonwelded to densely welded ash-flow tuff of the Miocene (11.45 to 11.7 Ma) Timber Mountain Group forms this drainage divide. Miocene rhyolite to quartz trachyte lava flows, ash-flow tuff, and ash-fall tuff in the 14.2 to 14.9 Ma Volcanics of Quartz Mountain (including the Tuff of Tolicha Peak) and the 8.3 to 9.0 Ma Rhyolite of Sarcobatus Flat (including the Rhyolite of Obsidian Butte) crop out on Pahute Mesa (Workman et al., 2002; Slate et al., 1999; Warren et al., 1998; Minor et al., 1993).

Potential/Certainty for Metallic Minerals Associated with Plutonic Rocks: L/D. A low (L) potential for pluton-related metallic-mineral deposits was assigned to Area 9, because there are no known occurrences of metallic-mineral deposits associated with plutonic rocks in this area. A high (D) certainty is associated with the assigned potential rating, because reconnaissance-level geologic mapping provides abundant direct and indirect evidence that plutons do not occur at or near the land surface in Area 9.

Potential/Certainty for Metallic Minerals Associated with Epithermal Systems: L/D. A low (L) potential for epithermal metallic-mineral deposits was assigned to Area 9, because there are no known occurrences of epithermal metallic-mineral deposits in this area. A high (D) certainty is associated with the assigned potential rating, because reconnaissance-level geologic mapping provides abundant direct and indirect evidence of a geologic environment unfavorable for the occurrence of epithermal metallic-mineral deposits in Area 9.

AREA 10 – Area 10 is dominated by Stonewall Pass and adjacent hills that form a drainage divide between Sarcobatus Flat on the south and east and Lida Valley on the north (Shannon & Wilson, 2005c, table 5 and fig. 3). These hills are underlain, in part, by the Late Proterozoic and Early Cambrian Wood Canyon Formation, which consists of >1,600 feet of shale, quartzite, and subordinate limestone (Tingley et al., 1998). The Wood Canyon Formation is intruded by an andesite plug and overlain by the Miocene (11.45 to 11.7 Ma) Timber Mountain Group (Workman et al, 2002; Tingley et al., 1998). The Timber Mountain Group in Area 10 consists of faulted, nonwelded to densely welded, rhyolitic to trachytic, ash-flow and ash-fall tuff (Shannon & Wilson, 2005c; Workman et al., 2002). Holocene to late Pleistocene alluvial fans flanking outcrops of tuff slope north, south, and east from the drainage divide. Alluvial fans sloping west from Pahute Mesa, on the east side of Area 10, are dissected by a braided wash containing Holocene to late Pleistocene channel and floodplain alluvium and slide blocks of the Timber Mountain Group (Shannon & Wilson, 2005c, table 5).

Potential/Certainty for Metallic Minerals Associated with Plutonic Rocks: H/C. Area 10 encompasses the Wagner mining district (Plate 1), in which known mineralization is restricted to brecciated quartzite and silicified and brecciated or kaolinized shale of the Wood Canyon Formation (Tingley et al., 1998). Metallic sulfides, iron oxides, and secondary copper minerals in samples collected from outcrops, mine shafts and prospect pits contain anomalously high amounts of copper, cobalt, nickel, mercury, thallium, and other metals. Tingley et al. (1998) interpreted this suite of enriched elements and the occurrence of mineralization in stockwork veinlets and silicified breccias to indicate the probable presence in Area 10 of a polymetallic replacement deposit related to a porphyritic intrusive. Tingley et al. (1998) estimated a high (H) potential for the production of low-tonnage mixed oxide and sulfide copper ore from this resource. On the basis of analyzed samples and exploration borehole data, Tingley et al. (1998) assigned a moderate (C) level of certainty to their estimate of resource potential.

Potential/Certainty for Metallic Minerals Associated with Epithermal Systems: M/B. A moderate (M) potential for metallic-mineral deposits related to epithermal systems was assigned to Area 10 on the basis of generally favorable geologic terrain (Singer, 1996) for this type of mineral deposit. A low (B) certainty is associated with the assigned potential rating, because the available data provide only indirect evidence in support of this rating (e.g., direct evidence supports mineralization associated with plutonic rocks, rather than epithermal systems, according to Tingley et al., 1998).

AREA 11 – Area 11 is located mostly in Lida Valley, but its eastern edge crosses the lower slopes of Stonewall Mountain (Shannon & Wilson, 2005c, table 5 and fig. 3). Stonewall Mountain is the eroded core of a late Miocene (7.5 to 7.6 Ma) caldera, which adjoins Area 11 on its east side (Plate 4; Weiss and Noble, 1989). An outlier of rhyolitic ash-flow tuff erupted from the Stonewall Mountain Caldera protrudes through fan alluvium on the north side of Area 11 (Plate 4; Workman et al., 2002). Outcrops of rhyolitic, nonwelded ash-fall and ash-flow tuff of the Miocene Timber Mountain Group border Quaternary playa deposits on the south side of Area 11 (Plate 4; Shannon & Wilson, 2005c). Most of Area 11 is covered by a composite Holocene to Pleistocene alluvial fan that slopes southwest from Stonewall Mountain (Plate 4). Because of the high-angle northeast-striking Stonewall Mountain fault, the complex north-northwest striking Sarcobatus Flat-Goldfield Hills fault zone, and other faults shown by Workman et al. (2002), it is difficult to extrapolate Tertiary volcanic rocks and Cambrian to Late Proterozoic sedimentary rocks exposed in highlands west and east of Lida Valley (Plate 4) beneath alluvium within the valley.

Potential/Certainty for Metallic Minerals Associated with Plutonic Rocks: M/B. The northern end of Area 11 intersects the western end of the Stonewall mining district (Plate 1). In the western part of this district, numerous narrow quartz-calcite veins fill steeply dipping northeast- to northwest-striking fractures and faults cutting a large monzonite to trachyte stock and rhyolitic welded ash-flow tuff of the Miocene Rhyolite of Quartz Mountain (Tingley et al., 1998). The intrusive and volcanic rocks are hydrothermally altered and contain disseminated pyrite where they are not oxidized. The Stonewall King mine, which was completed in the area about 1911, is a 240-foot-deep shaft along a vein with silver mineralization (Tingley et al., 1998; Cornwall, 1972). In the early 1920s, the Yellow Tiger tunnel was driven 1 mile to intercept the workings of the Stonewall King mine (Tingley et al., 1998). The Yellow Tiger tunnel was reported in 1926 to contain 10,000 tons of ore with an average of 16 ounces of silver and 0.06 ounces of gold per ton (Tingley et al., 1998). In the 1990s, Tingley et al. (1998) observed five adits <300 feet long and two shafts <100 feet long that were present in addition to the Yellow Tiger tunnel and the Stonewall King mine shaft in the western part of the Stonewall district. All of these workings, which are about 0.25 to 3 miles from Area 11, were abandoned when visited in

July 2004 (Shannon & Wilson, 2005a). Tingley et al. (1998) estimated a moderate (M) resource potential, with a low certainty (B), for stockwork-disseminated, low base-metal, silver-gold deposits at depth in the eastern part of the Stonewall district on the basis of direct and indirect evidence. This evidence included the style, texture, mineralogy, and trace-element content of metallic-mineral veins, the mineralogy of altered wall rocks, and the geologic setting. It seems reasonable to extend this evaluation to the western part of the Stonewall district and, hence, to Area 11, because of similar geology and mineralization throughout the Stonewall district.

Potential/Certainty for Metallic Minerals Associated with Epithermal Systems: H/C. Tingley et al. (1998) estimated a high (H) resource potential, with a moderate certainty (C), for small-tonnage, bonanza-vein, low base-metal, epithermal silver-gold deposits at depth in the eastern part of the Stonewall district on the basis of direct and indirect evidence. This evidence included the style, texture, mineralogy, and trace-element content of metallic-mineral veins, the mineralogy of altered wall rocks, and the geologic setting. It seems reasonable to extend this evaluation to the western part of the Stonewall district and, hence, to Area 11, because of similar geology and mineralization throughout the Stonewall district.

AREA 12 –Area 12 is located in Stonewall Flat and on the lower slopes of Stonewall Mountain, the Goldfield Hills, and the Cuprite Hills (Shannon & Wilson, 2005c, table 5 and fig. 3). Most of the area is covered by composite Holocene and Pleistocene alluvial fans that slope northwest from Stonewall Mountain, southeast from the Goldfield Hills, and east from the Cuprite Hills toward a playa in Stonewall Flat (Plate 4; Workman et al., 2002). At and near the surface, the Stonewall Flat playa contains Quaternary fine-grained sediments (Shannon & Wilson, 2005c). Washes draining Stonewall Mountain, the Goldfield Hills, and the Cuprite Hills contain Holocene and late Pleistocene channel alluvium (Plate 4; Shannon & Wilson, 2005c). In the northwest part of Area 12, Miocene sedimentary and volcanic rocks form the lower slopes of the Goldfield Hills (Plate 4). The 13 to 16 Ma Siebert Tuff consists of tuffaceous conglomerate, sandstone, and shale with thin beds of tuff (Albers and Stewart, 1972); the 7.5 to 7.6 Ma Tuff of Stonewall Flat consists of rhyolitic, nonwelded to densely welded, lithic-rich, ash-flow tuff (Shannon & Wilson, 2005c; 2005d).

Potential/Certainty for Metallic Minerals Associated with Plutonic Rocks: M/B. Area 12 intersects the west end of the Stonewall mining district (Plate 1). Within this district, hydrothermally altered monzonite and trachyte stocks related to the late Miocene Stonewall Mountain caldera are cut by quartz-calcite veins that contain silver and gold mineralization (see Area 11 for a more complete discussion of the Stonewall district). A moderate (M) resource potential, with a low certainty (B), for stockwork-disseminated, low base-metal, silver-gold deposits exists at depth in the Stonewall district (Tingley et al., 1998), and, thus, in Area 12.

Potential/Certainty for Metallic Minerals Associated with Epithermal Systems: H/C. Area 12 intersects the east end of the Cuprite mining district, as well as the west end of the Stonewall mining district (Plate 1). In the Stonewall district, within 3 miles of the rail corridor, hydrothermally altered rhyolitic ash-flow tuff and monzonite and trachyte stocks related to the Stonewall Mountain caldera are cut by quartz-calcite veins that contain silver and gold mineralization (see Area 11 for a more complete discussion of the Stonewall district). A high (H) resource potential, with moderate certainty (C), for small-tonnage, bonanza-vein, low base-metal, epithermal silver-gold deposits exists at depth in the Stonewall district (Tingley et al., 1998). At the northeast end of the Cuprite mining district, within 2 miles of the rail corridor, the Tuff of Stonewall Flat and tuffaceous sedimentary rocks in the Siebert Tuff are oxidized and hydrothermally altered. The hydrothermally altered rocks contain gold-bearing veins and pods and irregular masses of sulfur (Shannon & Wilson, 2005a; Tingley, 1998; Cornwall, 1972). Some of the host rocks have a tufa-like appearance, possibly related to former hot springs (As shown on Plate 3, thermal wells are located within and adjacent to Area 12). Numerous adits, prospect pits, and trenches and evidence of recent exploratory drilling were observed during visits to the Cuprite district in July 2004 (Shannon & Wilson, 2005a). Despite observed mineralization, hot water at relatively shallow depths, and a favorable geologic setting, there has been no production from the Cuprite district in the 100 years since the district was discovered (Tingley, 1998; Cornwall, 1972). Thus, the district is considered to have a moderate (M) potential, with low certainty (B), for small-tonnage, bonanza-vein, low base-metal, epithermal gold deposits. Considering the highest estimates for the two mining districts intersected by Area 12, this area is assigned a high (H) resource potential, with moderate certainty (C).

AREA 13 –Area 13, on the south flank of the Goldfield Hills (Plate 4, Workman et al., 2002), is about 1 mile south of the boundary of the Goldfield mining district (Tingley et al, 1998; Ashley, 1975). Andesite lava flows of the early Miocene (20.8 Ma) Chispa Andesite crop out on the north side of the area (Shannon & Wilson, 2005c; Ashley, 1975). Rhyolitic, nonwelded to densely welded ash-flow tuff of the late Miocene (7.5 to 7.6 Ma) Tuff of Stonewall Flat crops out on the west and north sides of the area (Shannon & Wilson, 2005c; 2005d). A southeast-sloping, predominantly early to middle Pleistocene alluvial fan covers most of the land surface in Area 13 (Shannon & Wilson, 2005c; Workman et al., 2002). Washes containing Holocene to late Pleistocene channel alluvium are incised into the fan alluvium and volcanic rocks (Shannon and Wilson, 2005d; Ashley, 1975).

Potential/Certainty for Metallic Minerals Associated with Plutonic Rocks: L/D. A low (L) potential for pluton-related metallic-mineral deposits was assigned to Area 13, because there are no known occurrences of metallic mineral deposits associated with plutonic rocks in this area. A high (D) certainty is associated with the assigned potential rating, because geologic maps and negative results from prospecting provide direct and indirect evidence that plutons do not occur at or near the land surface in Area 13.

Potential/Certainty for Metallic Minerals Associated with Epithermal Systems: L/B. A low (L) potential for epithermal metallic-mineral deposits was assigned to Area 13, because there are no known occurrences of epithermal metallic-mineral deposits in this area. A low (B) certainty is associated with the assigned potential rating, because there is indirect evidence to support a potentially favorable geologic environment for these resources in Area 13. This evidence includes the location of Area 13 between the Goldfield mining district to the north and the Stonewall mining district to the south. Hydrothermal solutions emanating from the calderas hosting both of these mining districts might have produced epithermal metallic-mineral deposits at depth in Area 13.

AREA 14 –Area 14, in the Goldfield Hills, includes most of the Goldfield mining district (Alternates GF3 and GF4, added since February 2005, extend the boundaries of Area 14 shown on Plates 1 and 4 from Malpais Mesa on the west to the NTTR on the east). The rail corridor in this area mostly traverses early Miocene (17.8 to 21.5 Ma) volcanic rocks (Shannon & Wilson, 2005c; 2005d; Ashley, 1975). Most of these volcanic rocks belong to the Milltown Andesite and the dacite at Goldfield, which generally consist of slightly to moderately altered, fine-grained to porphyritic, rhyodacite, andesite, and basaltic andesite lava flows, subordinate breccia, and minor intrusive rocks. In fault zones, these volcanic rocks are hydrothermally altered pervasively, brecciated, shattered, and partly reduced to clayey gouge. Andesite megabreccia, which consists of angular clasts of hydrothermally altered volcanic rocks in variably indurated gouge, occurs on the southeast side of the area. Strongly foliated, rhyolite lava flows of the Rhyolite of Wildhorse Spring crop out in the northeast corner of the area. Nonwelded to densely welded, rhyolite to rhyodacite ash-flow tuffs of the Tuff of Chispa Hills and Fraction Tuff crop out on the north, west, and south sides of the area. Andesite lava flows of the Chispa Andesite crop out on the south side of the area. The late Miocene (7.5 to 7.6 Ma) Tuff of Stonewall Flat, which erupted from the Stonewall Mountain Caldera (see Areas 12 and 13), extends into the south and east sides of Area 14 (Shannon & Wilson, 2005d). Quaternary-Tertiary basalt flows cap hills and mesas, especially on the north side of Area 14 (Shannon & Wilson, 2005d). Early Miocene (21 to 21.5 Ma) conglomerate and sandstone, middle Miocene (13 to 17 Ma) Siebert Tuff (ash-fall tuff intercalated with conglomerate, sandstone, and siltstone), and Quaternary-Tertiary pediment, alluvial fan, and landslide deposits have relatively small exposure in the area. The Miocene volcanic and sedimentary rocks are dissected by numerous washes containing Holocene and Pleistocene channel alluvium. Numerous diversely oriented, generally high-angle faults transect the Miocene volcanic rocks (Shannon & Wilson, 2005d; Ashley, 1975).

Potential/Certainty for Metallic Minerals Associated with Plutonic Rocks: M/B. The Goldfield mining district, which was discovered in 1902 (Albers and Stewart, 1972), primarily contains epithermal precious-metal deposits of the quartz-alunite type (Tingley et al., 1998). However, Ashley (1990) indicated that an Oligocene intrusive center, about 3.8 miles in diameter, underlies the early Miocene volcanic rocks, in which most of the district's producing mines have been located. Precious-metal deposits occur in the Oligocene intrusive rocks (Tingley et al., 1998). A moderate (M) potential for pluton-related precious-metal deposits was assigned to Area 14, based on the known occurrence of these resources in a favorable geologic setting. A low (B) certainty is associated with the assigned potential rating, because the extent of precious-metal occurrences in the buried intrusive center is poorly known relative to reserves of epithermal precious-metal deposits, and mining the deep pluton-hosted deposits probably would be more costly than mining the relatively shallow epithermal deposits.

Potential/Certainty for Metallic Minerals Associated with Epithermal Systems: H/D. The Goldfield mining district was described by Tingley et al. (1998) as a largely epithermal, precious-metal deposit of the quartz alunite type (alunite is a hydrous potassium-aluminosilicate mineral which is found in areas where volcanic rocks containing potassium feldspar have been altered by solutions containing sulfuric acid). From 1903 to 1960, gold-rich, bonanza-vein deposits were mined from an area of about 0.5 square miles within a 15 square-mile area of hydrothermally altered volcanic rocks (Ashley, 1990). The gold ore bodies occur in quartz-rich zones (commonly referred to as ledges) emplaced within larger areas of pervasive clayey alteration (Tingley et al., 1998). The tabular ledges commonly follow faults or fractures within early Miocene volcanic rocks, particularly the Milltown Andesite and the dacite at Goldfield (Ashley, 1990; Albers and Stewart, 1972). The main area of gold mineralization is located along the west margin of the Goldfield Caldera (Ashley, 1990). Ore and gangue minerals include quartz, pyrite, famatinite, tetrahedrite-tennanite, bismuthinite, native gold, gold-silver tellurides, chalcopyrite, sphalerite, and barite (Tingley et al., 1998). Fluid-inclusion and isotopic studies indicate that the ores formed at relatively shallow depths from meteoric water heated to temperatures of 200-300^0 C (Tingley et al., 1998). From 1903 to 1960, the Goldfield mining district produced 7,740,154 tons of ore containing about 4.2 million ounces of gold, 1.5 million ounces of silver, 7.7 million pounds of copper, and 52,000 pounds of lead (Albers and Stewart, 1972). Production peaked in 1910-1911, but ore was produced steadily until 1942. The district was mostly inactive from 1947 to the 1980s (Shannon and Wilson, 2005a). Heap-leaching low-grade ore excavated from open-pit mines resulted in the production a few thousand ounces of gold per year between 1988 and 1995 (Tingley et al., 1998). Exploration in the mining district, involving borehole drilling, sub-surface and surface geochemical sampling, and numerous geophysical surveys, has continued since about 1980 (Shannon & Wilson, 2005a). A high (H) potential for epithermal metallic-mineral deposits was assigned to Area 14 on the basis of historical production and proven reserves in the Goldfield mining district (Shannon & Wilson, 2005a; Tingley at al., 1998) and a favorable geologic setting for this type of resource (Singer, 1996). A high (D) certainty is associated with the assigned potential rating, because geologic maps, exploration holes, geochemical data, and geophysical surveys provide abundant direct and indirect evidence in support of this rating.

AREA 15 –Area 15 includes the southern part of Montezuma Valley, the northern Goldfield Hills, the south end of Ralston Valley, and the west side of Mud Lake playa (Alternates GF3 and GF4, added since February 2005, extend the boundaries of Area 15 shown on Plates 1 and 4 from Montezuma Valley on the west to the NTTR on the east). In Montezuma Valley, the corridor traverses a remnant early and middle Pleistocene alluvial fan, the middle Miocene Siebert Tuff, and Quaternary Tertiary basalt flows (Shannon & Wilson, 2005c, table 5, and fig. 3). The northeastern Goldfield Hills are underlain by early Miocene rhyodacite to andesite welded tuff and subordinate lava flows, which largely are covered to shallow depths by Pleistocene pediment deposits (Shannon & Wilson, 2005c). Quaternary-Tertiary basalt flows cap hills underlain by tuff and are exposed in washes in the northeastern Goldfield Hills, and they have considerable surface exposure in the northwestern Goldfield Hills (Shannon & Wilson, 2005d). Individual flows typically vary from dense at the bottom to vesicular at the top. The northern Goldfield Hills are dissected by numerous shallow washes filled with Holocene and Pleistocene channel alluvium that drain westward to Montezuma Valley and eastward to Mud Lake. Holocene to Pleistocene alluvial fan, pediment, and playa-apron deposits surround Mud Lake at the south end of Ralston Valley (Bonham and Garside, 1979). Mud Lake is a circular playa, approximately 20 square miles in area that is underlain by fine-grained sediments with a relatively deep water table. Hills composed of Quaternary-Tertiary basalt flows locally overlying Tertiary rhyolite domes, basaltic andesite plugs, or the Siebert Tuff, protrude from the Quaternary sediments surrounding Mud Lake (Shannon & Wilson, 2005c; 2005d).

Potential/Certainty for Metallic Minerals Associated with Plutonic Rocks: L/B. A low (L) potential for pluton-related metallic-mineral deposits was assigned to Area 15, because there are no known occurrences of metallic mineral deposits associated with plutonic rocks in this area. A low (B) certainty is associated with the assigned potential rating, because a Cretaceous pluton containing argentiferous veins might extend beneath alluvial cover into the area from the Klondyke mining district to the northwest (Plate 1; Bonham and Garside, 1979).

Potential/Certainty for Metallic Minerals Associated with Epithermal Systems: L/B. A low (L) potential for epithermal metallic-mineral deposits was assigned to Area 15, because there are no known occurrences of epithermal metallic-mineral deposits in this area. A low (B) certainty is associated with the assigned potential rating, because Area 15 is located between the Goldfield and Klondyke mining districts (Plate 1). Although the northern boundary of the Goldfield Caldera, as shown by Workman et al. (2002), is south of Area 15, ore deposits might extend beneath alluvial cover from the Goldfield mining district to Area 15 along faults cutting rhyodacite to andesite tuffs and lava flows. However, only scattered prospect pits and shafts were observed in the northern Goldfield Hills during 2004 and 2005. From 1903 to 1932, the Klondyke mining district produced 16,606 tons of ore enriched in gold, silver, copper, and lead (table 1). Ore deposits in the Klondyke district occur in faulted Cambrian and Ordovician limestone, chert, siltstone, and argillite that are intruded by irregular bodies and dikes of Tertiary rhyolite and a small pluton of Cretaceous granite (Shannon & Wilson, 2005a; Bonham and Garside, 1979). Ore deposits might extend beneath alluvial cover into Area 15 from the Klondyke mining district, but faults mapped by Bonham and Garside (1979) appear to restrict the Paleozoic sedimentary rocks and Cretaceous and Tertiary intrusive rocks of the Klondyke district to the South Klondyke Hills, beyond Area 15.

AREA 16 – Area 16 extends from Ralston Valley into Stone Cabin Valley and includes the northern edge of Mud Lake playa and the southern tip of the Monitor Hills (Plate 1). With the exception of two small exposures of Tertiary tuffaceous rocks at the south end of the Monitor Hills, the area is covered entirely by Holocene to latest Pleistocene playa-apron deposits and valley-floor alluvium (Plate 4; Shannon & Wilson, 2005c, Bonham and Garside, 1979; Cornwall, 1972). Because drilling in the area generally has been limited to shallow water wells, depths to, and the nature of bedrock underlying the valley-fill deposits are unknown.

Potential/Certainty for Metallic Minerals Associated with Plutonic Rocks: L/D. A low (L) potential for pluton-related metallic-mineral deposits was assigned to Area 16, because there are no known occurrences of metallic mineral deposits associated with plutonic rocks in this area. A high (D) certainty is associated with the assigned potential rating, because geologic maps and well logs (Bunch and Harrill, 1984) provide direct evidence that plutons do not occur at or near the land surface in Area 16.

Potential/Certainty for Metallic Minerals Associated with Epithermal Systems: L/D. A low (L) potential for epithermal metallic-mineral deposits was assigned to Area 16, because there are no known occurrences of epithermal metallic-mineral deposits in this area. A high (D) certainty is associated with the assigned potential rating, because there is no evidence to support the possible existence of these resources in Area 16.

AREA 17 – Area 17 is located at the southern end of Stone Cabin Valley (Plate 1). The corridor traverses a valley floor underlain by Holocene to latest Pleistocene alluvium (Plate 4; Shannon & Wilson, 2005c). Water wells in the area indicate that the depth to bedrock exceeds 117 feet (Bunch and Harrill, 1984). The nature of bedrock underlying the valley-fill deposits is unknown.

Potential/Certainty for Metallic Minerals Associated with Plutonic Rocks: L/D. A low (L) potential for pluton-related metallic-mineral deposits was assigned to Area 17, because there are no known occurrences of metallic mineral deposits associated with plutonic rocks in this area. A high (D) certainty is associated with the assigned potential rating, because geologic maps and well logs provide direct evidence that plutons do not occur at or near the land surface in Area 17.

Potential/Certainty for Metallic Minerals Associated with Epithermal Systems: L/D. A low (L) potential for epithermal metallic-mineral deposits was assigned to Area 17, because there are no known occurrences of epithermal metallic-mineral deposits in this area. A high (D) certainty is associated with the assigned potential rating, because there is no evidence to support the possible existence of these resources in Area 17.

AREA 18 – Area 18 is located in Stone Cabin Valley where the corridor ascends from the valley floor to the lower part of an alluvial fan sloping west from the Kawich Range (Plate 1). The Holocene to latest Pleistocene valley floor and alluvial fan deposits are at least 200 feet thick (Plate 4; Shannon & Wilson, 2005c; Bunch and Harrill, 1984). Bedrock beneath the alluvium is inferred to be similar to the Tertiary volcanic rocks that crop out within and near Area 18. Tertiary rhyolite crops out at the west end of Area 18. Outcrops in the Kawich Range just east of Area 18 and within and adjacent to Area 19 mostly include early Miocene to late Oligocene rhyolite lava flows and tuff (discussed further below).

Potential/Certainty for Metallic Minerals Associated with Plutonic Rocks: L/B. A low (L) potential for pluton-related metallic-mineral deposits was assigned to Area 18, because there are no known occurrences of metallic mineral deposits associated with plutonic rocks in this area. A low (B) certainty is associated with the assigned potential rating, because mineralized plutonic rocks might extend beneath alluvial cover from the Kawich Range into Area 18.

Potential/Certainty for Metallic Minerals Associated with Epithermal Systems: L/B. A low (L) potential for epithermal metallic-mineral deposits was assigned to Area 18, because there are no known occurrences of epithermal metallic-mineral deposits in this area. A low (B) certainty is associated with the assigned potential rating, because mineralization similar to that in the nearby Golden Arrow mining district (Plate 1) might extend into concealed volcanic rocks assumed to underlie Area 18.

AREA 19 – Area 19 extends east from the floor of Stone Cabin Valley to the west side of the Kawich Range (Plate 1). The west side of the area traverses Holocene to latest Pleistocene alluvium deposited within and adjacent to Willow Creek, a braided, ephemeral stream (Plate 4; Shannon & Wilson, 2005c). In wells drilled near the northwest corner of Area 19, the mostly fine-grained valley-floor alluvium is more than 200 feet thick (Bunch and Harrill, 1984). Coyote Hole Spring, a warm (29°C) spring issues from the valley-floor alluvium about 0.5 mile west of Area 19 (Shannon & Wilson, 2005a; Bunch and Harrill, 1984). As the corridor ascends coalesced alluvial fans on the west side of the Kawich Range, the alluvium becomes increasingly coarse-grained (Shannon & Wilson, 2005c). Well-bedded upper fan alluvium generally dips outward from the mountain front at angles $\leq 5°$. The east side of Area 19 intersects the western edge of the Kawich Range Caldera (Plate 4; Workman et al., 2002). Outcrops of early Miocene to late Oligocene rhyolite to rhyodacite ash-flow tuff associated with this caldera crop out in the Kawich Range and as buttes protruding through the upper fan alluvium adjacent to, and on the east side of Area 19 (Workman et al., 2002; Cornwall, 1972). Early to middle Miocene (?) rhyolite and andesite intrusive bodies and lava flows crop out as buttes in the southeast corner of the area (Plate 4; Gardner et al., 1980; Cornwall, 1972). Quaternary-Tertiary basalt overlying Oligocene tuff forms a small butte north of the Golden Arrow mine (Plate 4; Kleinhampl and Ziony, 1985). The Kawich Range is a horst with respect to Stone Cabin and Reveille Valleys because of the range-bounding Hot Creek-Reveille Range Fault on its east side and unnamed en-echelon faults on its west side (Kleinhampl and Ziony, 1985; Cornwall, 1972). Numerous faults, including the 30-mile-long, northwest-trending Bellehelen Fault zone, transect the volcanic rocks exposed in the Kawich Range (Gardner et al., 1980).

Potential/Certainty for Metallic Minerals Associated with Plutonic Rocks: L/C. A low (L) potential for pluton-related metallic-mineral deposits was assigned to Area 19, because there are no known occurrences of metallic mineral deposits associated with plutonic rocks in this area. A moderate (C) certainty is associated with the assigned potential rating because available data provide indirect evidence that plutons associated with mineralization in the Ellendale mining district 2-8 miles northwest of Area 19 (Plate 1) might extend beneath alluvial cover beyond known boundaries of the mining district. Between 1908 and 1960, the Ellendale district produced gold, silver, copper, and barite, principally from the Ellendale and Jumbo mines (table 1; Kleinhampl and Ziony, 1984). The host rocks at the Ellendale mine are early to middle Miocene (?) rhyolite domes, plugs, and stocks, whereas the host rocks at the Jumbo mine are metamorphosed Cambrian and Ordovician (?) limestone and shale. Bodies of Cretaceous or Tertiary quartz diorite and diorite porphyry exposed between the Ellendale and Jumbo mines, extensive metamorphism of Paleozoic rocks in this area, and an aeromagnetic anomaly in the vicinity of the Jumbo mine suggest that plutons concealed at shallow depths underlie a large part of the Ellendale district and possibly extend southeast into Stone Cabin Valley (Kleinhampl and Ziony, 1984). The presence of Coyote Hole (warm) Spring in Stone Cabin Valley indicates that a heat source at shallow depth, which might be a pluton, extends at least to the northwest edge of Area 19.

Potential/Certainty for Metallic Minerals Associated with Epithermal Systems: H/C. A high (H) potential for epithermal metallic-mineral deposits was assigned to Area 19, because this area overlaps the northeastern part of the Golden Arrow mining district. Between 1905 and 1950, this district produced small quantities of silver and gold from the Golden Arrow, Gold Bar and Desert shafts and the Jeep claims (Cornwall, 1972). The ore deposits consist of pyritized quartz veins that occur along faults in early Miocene rhyolitic ash-flow tuff and andesite lava flows (Cornwall, 1972). In the mid to late 1980s an open-pit, heap leach mine operation along a northwest trending structure produced an unknown quantity of gold before the mine was abandoned. The Nevada Bureau of Mines and Geology (2003) reported that ore reserves in the district as of 1997 were 12.4 million tons with an average of 0.039 ounces of gold per ton. A moderate (C) certainty is associated with the assigned potential rating because the available data provide direct evidence in support of this rating. This evidence includes the proximity of Area 19 to historically mined resources in the Golden Arrow district, and exploration by a number of companies from the late 1980s to the present (2005) that has increased the known size of the ore deposit in the district (Shannon & Wilson, 2005a).

AREA 20 – Area 20 extends from Stone Cabin Valley to the alluvial fan bordering the west side of the Kawich Range (Plate 1). The Holocene to late Pleistocene valley-floor and alluvial fan deposits cover the entire area and are more than 200 feet thick (Plate 4; Shannon & Wilson, 2005c; Bunch and Harrill, 1984). The Kawich Range alluvial fan is moderately dissected by northwesterly to westerly draining washes. As the corridor ascends the fan, the alluvium becomes increasingly coarse-grained (Shannon & Wilson, 2005c). Interbedded sand and gravel layers in the upper part of the alluvial fan dip outward from the mountain front at angles $\leq 5°$.

Bedrock underlying the alluvial fan is assumed to be similar to the early Miocene tuffaceous rocks exposed in the Kawich Range, about 1 mile east of Area 20 (Gardner et al., 1980).

Potential/Certainty for Metallic Minerals Associated with Plutonic Rocks: L/D. A low (L) potential for pluton-related metallic-mineral deposits was assigned to Area 20, because there are no known occurrences of metallic-mineral deposits associated with plutonic rocks in this area. A high (D) certainty is associated with the assigned potential rating because the available data provide direct and indirect evidence in support of this rating. The direct evidence from geologic maps and well logs is the thick cover of alluvium throughout Area 20. Indirect evidence for the absence of this type of resource is the lack of mines in the area, despite the presence of the Golden Arrow mining district less than 3 miles to the south, the Bellehelen mining district 2 miles to the west, and the Clifford mining district less than 4 miles to the northeast (Plate 1).

Potential/Certainty for Metallic Minerals Associated with Epithermal Systems: L/D. A low (L) potential for epithermal metallic-mineral deposits was assigned to Area 20, because there are no known occurrences of this type of resource in the area. A high (D) certainty is associated with the assigned potential rating, because the available data provide direct and indirect evidence in support of this rating. The direct evidence from geologic maps and well logs is the thick cover of alluvium throughout Area 20. Indirect evidence for the absence of this type of resource is the lack of mines in the area, despite the presence of the Golden Arrow mining district less than 3 miles to the south, the Bellehelen mining district 2 miles to the west, and the Clifford mining district less than 4 miles to the northeast (Plate 1).

AREA 21 – Area 21 starts on the west side of the Kawich Range, crosses Warm Springs Summit, a pass between the Kawich Range to the south and the Hot Creek Range to the north, and ends on the east side of the Kawich Range, just north of Cow Canyon (Plate 1). For the first 3 miles, Area 21 traverses an alluvial fan sloping northwest from the Kawich Range, in which the sediments are more than 380 feet thick (Plate 4; Shannon & Wilson, 2005c; Kleinhampl and Ziony, 1985; Bunch and Harrill, 1984). Outcrops of late Oligocene hydrothermally altered tuff and lava flows, early Miocene rhyolitic, welded ash-flow tuff, and middle to late Miocene lacustrine sediments, ash-fall tuff, and basaltic andesite lava flows protrude through the fan alluvium from the vicinity of the Clifford mine to the west side of Warm Springs Summit (Shannon & Wilson, 2005c; Gardner et al., 1980). Northeast-striking, high-angle faults along which the Kawich Range was uplifted are mapped in this area (Kleinhampl and Ziony, 1985; Gardner et al., 1980). At Warm Springs Summit, late Oligocene to early Miocene variably welded ash-flow tuffs terminate against Mississippian and Devonian shale, limestone, and quartzite on the down-dropped (south) side of the west-northwest-striking Warm Springs Fault (Whitebread and John, 1992; Kleinhampl and Ziony, 1985; Gardner et al., 1980). The Warm Springs Fault probably is a factor in the emplacement of Oligocene volcanic rocks against early Miocene volcanic rocks in the area, intrusion of a rhyolite body into the Oligocene and Miocene volcanic rocks and the occurrence of warm springs on the east side of Warm Springs Summit, hydrothermal (chloritic) alteration of the Oligocene volcanic rocks and the rhyolite intrusion, and late Miocene volcanism on both sides of Warm Springs Summit (Shannon & Wilson, 2005c). The early Miocene tuffaceous rocks, cut by several northeast-striking, high-angle faults and overlain in part by hydrothermally altered, late Miocene andesite lava flows, extend from the east side of Warm Springs Summit to the southeast edge of Area 21 (Shannon & Wilson, 2005c; Gardner et al., 1980). The early Miocene volcanic rocks terminate against a range-bounding fault, from which Black Spring issues (Shannon & Wilson, 2005c; Kleinhampl and Ziony, 1985). Downslope from this fault, alluvial fans slope eastward into Reveille Valley, where wells indicate that the predominantly coarse-grained fan sediments are more than 700 feet thick (Shannon & Wilson, 2005c; Plume, 1996; Kleinhampl and Ziony, 1985).

Potential/Certainty for Metallic Minerals Associated with Plutonic Rocks: L/C. A low (L) potential for pluton-related metallic-mineral deposits was assigned to Area 21, because there are no known occurrences of metallic-mineral deposits associated with plutonic rocks in this area. A moderate (C) certainty is associated with the assigned potential rating, because the available data provide indirect evidence of a concealed pluton about 0.5 mile north of Area 21. This evidence is the existence of Warm Springs, which issue at the intersection of U.S. Highway 6 and Nevada Highway 375 (shown on Plates 1 and 4 as Highway 25). Barite deposits in Devonian (?) limestone near Warm Springs (Kleinhampl and Ziony, 1984) might be related to this heat source.

Potential/Certainty for Metallic Minerals Associated with Epithermal Systems: H/C. A high (H) potential for epithermal metallic-mineral deposits was assigned to Area 21 because of gold and silver production from the Clifford mining district, which Area 21 passes through, and ongoing exploration within this district. A moderate (C) certainty is associated with the assigned potential rating because the available data provide direct and indirect evidence in support of this rating. The Clifford mining district is about 2 miles south of U.S. Highway 6 (Plate 1). The Clifford mine, the sole mine in the district (Kral, 1951), is 1,200 to 2,000 feet east-southeast of the proposed rail alignment (Plate 4; Shannon & Wilson, 2005c). From 1906 to 1954, the Clifford mine produced 3,254 tons of gold-silver ore from quartz-veined rhyolitic tuff and agglomerate in fault contact with andesite lava flows (Kleinhampl and Ziony, 1984). Although the mine has been inactive since the mid-1960s, ongoing exploration drilling and geophysical surveys have found high-grade gold mineralization beyond historically worked mine shafts. However, alluvial cover, fault truncation of host rocks for gold mineralization, and historically small production from the Clifford district suggest that any new production from this mining district might be limited. This evaluation of the resource potential in Area 21 ignores the Tybo mining district, which Area 21 also overlaps (Plate 1), because all of the metallic-mineral production from this district occurred well north of Area 21 from Paleozoic rocks that are truncated by the Warm Springs Fault (Kleinhampl and Ziony, 1984; 1985).

AREA 22 – Area 22 is located on the east side of the Kawich Range and in Reveille Valley (Plate 1). At the start of Area 22, the corridor traverses early Miocene rhyolitic, welded ash-flow tuff, which terminates against the range-bounding Hot Creek-Reveille Fault (Plate 4; Shannon & Wilson, 2005c; Kleinhampl and Ziony, 1985). On the downslope side of this fault, early to middle Pleistocene alluvial fan deposits descend into Reveille Valley and merge with concurrently deposited valley-floor alluvium that is more than 700 feet thick (Shannon & Wilson, 2005c; Plume, 1996). Coalesced alluvial fans sloping eastward from the Kawich Range and valley-floor alluvium cover most of the surface area in Area 22 (Shannon & Wilson, 2005c; Workman et al., 2002). Reveille Mill Spring, a warm (27°C) spring, issues from valley-floor alluvium east of the intersection of the Bellehelen Fault zone and the Hot Creek-Reveille Fault (Bunch and Harrill, 1984), which likely controls the location of this spring. Quaternary-Tertiary basalt flows locally extend into Area 22 from the west side of the adjacent Reveille Range and also run down the center of Reveille Valley toward its southern end (Shannon & Wilson, 2005c; Workman et al., 2002; Kleinhampl and Ziony, 1985).

Potential/Certainty for Metallic Minerals Associated with Plutonic Rocks: L/D. A low (L) potential for pluton-related metallic-mineral deposits was assigned to Area 22, because there are no known occurrences of metallic mineral deposits associated with plutonic rocks in this area. A high (D) certainty is associated with the assigned potential rating, because geologic maps and well logs provide direct evidence in support of this rating. This evidence includes thick alluvium overlying bedrock in most of the area and the absence of mineralization where bedrock is exposed.

Potential/Certainty for Metallic Minerals Associated with Epithermal Systems: L/B. A low (L) potential for epithermal metallic-mineral deposits was assigned to Area 22, because there are no known occurrences of this type of resource in the area. A low (B) certainty is associated with the assigned potential rating, because there is indirect evidence in support of this rating. Gold and silver mineralization in Tertiary volcanic rocks of the Bellehelen and Eden mining districts (Plate 1) might extend east into Area 22 along structural trends in the volcanic rocks that are concealed by alluvium (see discussion below of the Alien Gold project).

AREA 23 – Area 23 is located at the southern ends of Reveille and Railroad Valleys and includes the southern tip of the Reveille Range (Plate 1). The surface area is dominated by Pleistocene to Pliocene (?) alluvial fans sloping east from the Kawich Range and west from the Reveille Range, Holocene to Pleistocene alluvium flooring Reveille and Railroad Valleys, and Holocene to late Pleistocene alluvium filling the channels of washes draining from Reveille and Kawich Valleys into Railroad Valley (Plate 4; Shannon & Wilson, 2005c; Workman et al., 2002). The alluvium in a well drilled at the southern end of Reveille Valley is more than 370 feet thick; the alluvium in a well drilled at the southern end of Railroad Valley is more than 465 feet thick (Bunch and Harrill, 1984). Quaternary-Tertiary basalt flows and Oligocene dacite flows and intrusive domes form plateaus in the center of Reveille Valley and buttes at the southern end of the Reveille Range (Shannon & Wilson, 2005c; Gardner et al., 1980; Ekren et al., 1971).

Potential/Certainty for Metallic Minerals Associated with Plutonic Rocks: L/D. A low (L) potential for pluton-related metallic-mineral deposits was assigned to Area 23, because there are no known occurrences of metallic mineral deposits associated with plutonic rocks in this area. A high (D) certainty is associated with the assigned potential rating, because geologic maps, well logs, and exploratory drilling and geophysical surveys related to the Alien Gold project (Sandberg, 2004) provide direct evidence that plutons do not occur at or near the land surface in Area 23.

Potential/Certainty for Metallic Minerals Associated with Epithermal Systems: M/C. A moderate (M) potential for epithermal metallic-mineral deposits was assigned to Area 23, because the Alien Gold project (Sandberg, 2004) has revealed the presence of a silver and gold ore deposit at depth within and adjacent to the northwest corner of Area 23. The Alien Gold project consists of 189 unpatented mining claims located in Reveille Valley, 0.25 mile south and 3 miles west of Willow Witch well (Plate 1). Exploration, which began in 1988, has involved drilling more than 63 boreholes and conducting a resistivity and spontaneous potential gradient survey over an approximately 1 square-mile area. Gold and silver occurs in silica and sulfide veins, disseminated sulfides, stockworks, and breccias where Oligocene rhyolite to rhyodacite tuffs and related surge deposits, lava flows, vitrophyre, and volcaniclastic rocks have been silicified and argillized hydrothermally. The ore body, which is concealed by alluvium and the basalt and dacite lava flows exposed in southern Reveille Valley, appears to consist of broad zones of low-grade mineralization (0.05 to 1.0 gram of gold per ton) enveloping small zones of high-grade mineralization (1 to 31 grams of gold per ton). This mineralization most commonly occurs in the vicinity of faults that strike northwest and dip steeply southwest. A moderate (C) certainty is associated with the assigned potential rating, because the Alien Gold project provides direct and indirect evidence that an ore body with poorly delimited gold and silver concentrations extends an unknown distance into Area 23. According to Sandberg (2004), the styles of mineralization and alteration in this ore body are typical of "low-sulfidation" epithermal ore deposits in volcanic rocks.

AREA 24 – Area 24 is located at the southeast end of Railroad Valley, where alluvial fans sloping northwest and west from the Quinn Canyon Range terminate (Plate 1). The area is covered entirely by Holocene to Pleistocene alluvial fan deposits and valley-floor alluvium, into which washes containing Holocene to late Pleistocene channel-fill sediments are incised (Plate 4; Shannon & Wilson, 2005c; Workman et al., 2002). Alluvium at the southern end of Railroad Valley is more than 465 feet thick (Bunch and Harrill, 1984). Paleozoic sedimentary rocks and Tertiary volcanic rocks exposed in the Quinn Canyon Range (Plate 4) are inferred to underlie alluvium at the southeast end of Railroad Valley.

Potential/Certainty for Metallic Minerals Associated with Plutonic Rocks: L/D. A low (L) potential for pluton-related metallic-mineral deposits was assigned to Area 24, because there are no known occurrences of metallic mineral deposits associated with plutonic rocks in this area. A high (D) certainty is associated with the assigned potential rating, because geologic maps and well logs provide direct evidence that plutons do not occur at or near the land surface in Area 24.

Potential/Certainty for Metallic Minerals Associated with Epithermal Systems: L/B. A low (L) potential for epithermal metallic-mineral deposits was assigned to Area 24, because there are no known occurrences of this type of resource in the area.. A low (B) certainty is associated with the assigned potential rating, because geologic maps provide indirect evidence that mineralization in Paleozoic rocks in the Queen City mining district, near the south end of the Quinn Canyon Range (Plate 1), might extend beneath alluvium into Area 24.

AREA 25 – Area 25 is located at the south end of the Quinn Canyon Range, just north of where Nevada State Highway 375 (formerly 25) crosses the range at a low pass known as Queen City Summit (Plate 1). On the west side of the area, Holocene to Pleistocene alluvial fans slope west toward Railroad Valley (Plate 4, Shannon & Wilson, 2005c; Workman et al., 2002). On the east side of the area, an early Miocene to late Oligocene porphyritic andesite lava flow is in contact with, and might overlie Oligocene tuffaceous rocks (Plate 4, Shannon & Wilson, 2005c; Workman et al., 2002). The Oligocene tuffaceous rocks consist of a series of densely welded, commonly lithic-rich, partly lithophysal, dacitic (?) to rhyolitic ash-flow tuffs, which are overlain by thickly bedded, nonwelded, pumiceous, rhyolitic ash-fall and reworked tuff. Two north-northeast-striking, high-angle faults offset the volcanic rocks in the northeast part of Area 25 (Shannon & Wilson, 2005c), and a north-northwest-striking fault cuts the volcanic rocks in the southwest part of this area (Workman et al., 2002).

Potential/Certainty for Metallic Minerals Associated with Plutonic Rocks: L/D. A low (L) potential for pluton-related metallic-mineral deposits was assigned to Area 25, because there are no known occurrences of metallic mineral deposits associated with plutonic rocks in this area. A high (D) certainty is associated with the assigned potential rating, because geologic maps provide direct evidence that plutons do not occur at or near the land surface in Area 25.

Potential/Certainty for Metallic Minerals Associated with Epithermal Systems: L/B. A low (L) potential for epithermal metallic-mineral deposits was assigned to Area 25, because there are no known occurrences of this type of resource in the area. A low (B) certainty is associated with the assigned potential rating, because there is indirect evidence in support of this rating. This evidence is the existence of the Queen City mining district just south of Area 25 (Plate 1). From

1929 to 1943, the Blackhawk mine produced 68 flasks of mercury from quartz-cinnabar veins in limestone of the Cambrian Nopah Formation (Cornwall, 1972). In 1938, argentiferous galena-cinnabar-smithsonite veins in the Nopah Formation were prospected, and about 14 flasks of mercury were produced from the property (Tingley et al., 1998). Although most mines and prospects in this district historically have been located in the Nopah Formation, cinnabar has also been found in hydrothermally altered early Miocene to late Oligocene volcanic rocks (Cornwall, 1972). Since 1983, a large part of the district intermittently has been prospected for gold and silver (Shannon & Wilson, 2005a; Tingley et al., 1998). Mineralization in Cambrian sedimentary rocks and hydrothermally altered early Miocene to late Oligocene volcanic rocks of the Queen City district might extend beneath fan alluvium into the west side of Area 25.

AREA 26 – Area 26 is located at the south end of the Quinn Canyon Range and in western Sand Spring Valley (Plate 1). In the Quinn Canyon Range, on the west side of the area, Oligocene tuffaceous rocks are in contact with, and possibly underlie an early Miocene to late Oligocene porphyritic andesite lava flow (Plate 4, Shannon & Wilson, 2005c; Workman et al., 2002). The Oligocene tuffaceous rocks consist of a series of densely welded, commonly lithic-rich, partly lithophysal, dacitic (?) to rhyolitic ash-flow tuffs, which are overlain by thickly bedded, nonwelded, pumiceous, rhyolitic ash-fall and reworked tuff. Two small bodies of early Miocene to late Oligocene diorite intrude the Oligocene tuffaceous rocks (Plate 4). In Sand Spring Valley, on the east side of the area, the corridor mostly traverses Holocene to late Pleistocene upper fan alluvium, but outcrops of early Miocene to late Oligocene rhyolitic ash-flow tuff, andesitic lava flows, and diorite intrusions rise above the fan alluvium (Plate4; Shannon & Wilson, 2005c). Two north and northeast-striking, high-angle faults cut the volcanic rocks on the east side of the area (Plate 4).

Potential/Certainty for Metallic Minerals Associated with Plutonic Rocks: L/D. A low (L) potential for pluton-related metallic-mineral deposits was assigned to Area 26, because there are no known occurrences of metallic-mineral deposits associated with plutonic rocks in this area. A high (D) certainty is associated with the assigned potential rating, because geologic maps provide direct evidence that plutons do not occur at or near the land surface in the area.

Potential/Certainty for Metallic Minerals Associated with Epithermal Systems: L/D. A low (L) potential for epithermal metallic-mineral deposits was assigned to Area 26, because there are no known occurrences of epithermal metallic-mineral deposits in this area. A high (D) certainty is associated with the assigned potential rating, because geologic maps provide direct evidence that a favorable setting for this type of resource does not exist in the area.

AREA 27 – Area 27 is located entirely in Sand Spring Valley (Plate 1). Holocene and Pleistocene alluvial fans, incised by generally shallow, southerly draining washes filled with Holocene channel deposits, cover most of the surface area (Plate 4, Shannon & Wilson, 2005c; Workman et al., 2002). On the west side of the area, a ridge underlain by early Miocene to late Oligocene rhyolitic ash-flow tuff rises above the alluvium (Plate 4). This ridge is flanked on its east side by a northeast-striking, high-angle fault that extends north from Area 26 and is partly concealed by alluvium (Plate 4).

Potential/Certainty for Metallic Minerals Associated with Plutonic Rocks: L/D. A low (L) potential for pluton-related metallic-mineral deposits was assigned to Area 27, because there are no known occurrences of metallic-mineral deposits associated with plutonic rocks in this area. A high (D) certainty is associated with the assigned potential rating, because geologic maps provide direct evidence that plutons do not occur at or near the land surface in the area.

Potential/Certainty for Metallic Minerals Associated with Epithermal Systems: L/D. A low (L) potential for epithermal metallic-mineral deposits was assigned to Area 27, because there are no known occurrences of epithermal metallic-mineral deposits in this area. A high (D) certainty is associated with the assigned potential rating, because geologic maps provide direct evidence that a favorable setting for this type of resource does not exist in the area.

AREA 28 – Area 28 is located where Sand Spring Valley terminates against the Quinn Canyon Range, to the north (Plate 1). Holocene and Pleistocene alluvial fans, incised by generally shallow, southerly draining washes filled with Holocene channel deposits, cover the upper end of Sand Spring Valley and extend into the Quinn Canyon Range (Plate 4, Shannon & Wilson, 2005c; Workman et al., 2002). On the west side of the area, the northeast-striking fault noted in Areas 26 and 27 continues into the Quinn Canyon Range, where it brings Oligocene lava flows of intermediate composition into contact with early Miocene to late Oligocene rhyolitic ash-flow tuff (Plate 4; Workman et al., 2002). To the east, rock cropping out in the Quinn Canyon Range mostly consists of early Miocene to late Oligocene densely welded, rhyolitic ash-flow tuff. Where the corridor crosses a prong extending south from the east side of the Quinn Canyon

Range, several north-northeast to north-northwest-striking, high-angle faults cut the early Miocene to late Oligocene tuff (Plate 4, Shannon & Wilson, 2005c). Two of these faults bring slivers of Oligocene tuff into contact with the early Miocene to late Oligocene tuff. The juxtaposition of rocks with different lithologic and hydrologic properties along these faults disrupts regional ground-water flow and is responsible for McCutchen spring issuing along one of these faults (Shannon & Wilson, 2005c, fig. 3).

Potential/Certainty for Metallic Minerals Associated with Plutonic Rocks: L/D. A low (L) potential for pluton-related metallic-mineral deposits was assigned to Area 28, because there are no known occurrences of metallic-mineral deposits associated with plutonic rocks in this area. A high (D) certainty is associated with the assigned potential rating, because geologic maps provide direct evidence that plutons do not occur at or near the land surface in the area.

Potential/Certainty for Metallic Minerals Associated with Epithermal Systems: L/D. A low (L) potential for epithermal metallic-mineral deposits was assigned to Area 28, because there are no known occurrences of epithermal metallic-mineral deposits in this area. A high (D) certainty is associated with the assigned potential rating, because geologic maps provide direct evidence that a favorable setting for this type of resource does not exist in the area. Although the Quinn Canyon mining district overlaps the northeast corner of Area 28 (Plate 1), epithermal fluorspar and related metallic-mineral deposits in this district are located well north of Area 28 (Kleinhampl and Ziony, 1984; Tschanz and Pampeyan, 1970) and, therefore, they are not relevant in evaluating the resource potential of this area.

AREA 29 – Area 29 is located in a pass between the Quinn Canyon Range, on the north, and the Worthington Mountains, on the south, and includes small areas of both mountain ranges (Plate 1). It also includes a small part of the northwest corner of Garden Valley. Holocene and Pleistocene alluvial fans slope north and east from the Worthington Mountains and east from the Quinn Canyon Range into Garden Valley (Plate 4; Workman et al., 2002). Rock cropping out in the Quinn Canyon Range consists of early Miocene to late Oligocene densely welded, rhyolitic ash-flow tuff, which might have erupted from a caldera 0.2 to 2 miles north of the west side of Area 29 (Plate 4; Shannon & Wilson, 2005c). The northerly aligned Worthington Mountains are a horst uplifted by the range-bounding Penoyer and Freiberg Faults (Plate 4; Du Bray et al., 1986). At the north end of the Worthington Mountains, the Ordovician Eureka Quartzite and Ely

Springs Dolomite are thrust over the Devonian Sevy Dolomite and Simonson Dolomite, which are very faulted (Du Bray et al., 1986; Tschanz and Pampeyan, 1970). Two small granitic stocks of Cretaceous or Tertiary age, which might merge at depth, intrude the Pogonip Group in the upper plate of the thrust (Plate 4; Du Bray et al., 1986). The sedimentary rocks in contact with the granitic stocks are extensively metamorphosed (Tschanz and Pampeyan, 1970). As indicated by the presence of a butte composed of Devonian sedimentary rocks just north of Area 29, the Paleozoic sedimentary rocks exposed in the Worthington Mountains probably continue beneath alluvium in Garden Valley between the traces of the concealed Penoyer and Freiberg Faults (Plate 4).

Potential/Certainty for Metallic Minerals Associated with Plutonic Rocks: M/B. A moderate (M) potential for pluton-related metallic-mineral deposits was assigned to Area 29, because tungsten deposits occur in the Freiberg mining district, which overlaps Area 29 in the Worthington Mountains (Plate 1). Although noted mostly for epithermal deposits of precious and base metals (see discussion below), the Freiberg district also contains metasomatic tungsten deposits (Du Bray et al., 1986). Tungsten minerals occur in contact-metamorphosed limestone adjacent to the western of two granitic stocks in the Freiberg district. A low (B) certainty is associated with the assigned potential rating on the basis of direct and indirect evidence from geologic maps, geochemical investigations, and geophysical surveys. Tungsten mineralization observed in the Freiberg district might extend beneath alluvium in Garden Valley near granitic plutons indicated by an aeromagnetic survey (Du Bray et al., 1986).

Potential/Certainty for Metallic Minerals Associated with Epithermal Systems: M/B. A moderate (M) potential for epithermal metallic-mineral deposits was assigned to Area 29, because ore containing silver, lead, zinc, copper, and minor gold was produced from the Freiberg mining district, just south of Area 29 in the Worthington Mountains (Plate 1). Between 1919 and 1948, the Freiberg district produced small quantities of precious and base metals, primarily from the Smelter mine, which is excavated in Ordovician limestone (Du Bray et al., 1986). Between the late 1970s and early 1980s, tailings from the Smelter mine were processed for silver. Additional prospecting in the district has not led to significant production (Du Bray et al., 1986). A low (B) certainty is associated with the assigned potential rating, because geologic maps, geochemical investigations, and geophysical surveys provide indirect evidence that mineralized Paleozoic rocks might extend beneath alluvium on the east side of Area 29.

AREA 30 – Area 30 includes portions of the northern Garden Valley, two passes in the Golden Gate Range, and portions of the northwestern Coal Valley. In Garden Valley, the corridor crosses Quaternary alluvium. In the northern unnamed pass through the Golden Gate Range, a westerly trending, down-to-the-south fault is inferred to exist. South of the inferred fault, exposures of the Oligocene Shingle Pass Tuff and Needles Range Group volcanic rocks unconformably overlie east-dipping exposures of Pennsylvanian Ely Limestone and Mississippian Joana Limestone. North of the inferred fault, the Mississippian-Devonian Pilot Shale and Devonian Guilmette Formation are exposed. East of the Golden Gate Range in Coal Valley, Area 30 includes exposures of young Quaternary fan alluvium and fine-grained lacustrine sediments (DuBray and Hurtubise, 1994; DuBray, et al., 1987).

Potential/Certainty for Metallic Minerals Associated with Plutonic Rocks: L/C. A low (L) potential for pluton-related metallic mineral occurrences was assigned to this area because occurrences of metallic mineral deposits associated with plutonic rocks are not known to exist in Area 30. A moderate (C) certainty is associated with the assigned potential rating because map and borehole data provide direct evidence to indicate plutonic rocks do not exist at the surface in the Golden Gate Range, and to depths of less than 1,800 feet in Garden and Coal Valleys (Bunch and Harrill, 1984).

Potential/Certainty for Metallic Minerals Associated with Epithermal Systems: L/C. A low (L) potential for metallic mineral occurrences associated with epithermal systems was assigned to this area because no known occurrences of metallic mineralization associated with epithermal systems are known to exist in Area 30. A moderate (C) certainty is associated with the assigned potential rating because map and borehole data provide direct evidence to indicate epithermal systems do not exist at the surface in the Golden Gate Range, and to depths of less than 1,800 feet in Garden and Coal Valleys (Bunch and Harrill, 1984).

AREA 31 – In Area 31, the corridor diverges to form two alternates that cross Coal Valley. The southern alternate extends eastward to the margin of the Seaman Range just west of Timber Mountain Pass and the northern alternate traverses the Seaman Range at a low unnamed pass. Except for the bedrock exposures of the Seaman Range, older Quaternary alluvium deposits underlie a majority of the area. In the northern Seaman Range, Shingle Pass Tuff and Needles Range Group volcanic rocks unconformably overlie Pennsylvanian, Mississippian, and Devonian carbonate and clastic rocks in exposures that generally strike north to northwesterly, and dip west to southwesterly at less than 45°. Both Tertiary volcanics and Paleozoic Sedimentary rocks are cut by numerous high angle normal faults (DuBray and Hurtubise, 1994; DuBray, et al., 1987).

Potential/Certainty for Metallic Minerals Associated with Plutonic Rocks: L/C. A low (L) potential for pluton-related metallic mineral occurrences was assigned to this area because occurrences of metallic mineral deposits associated with plutonic rocks are not known to exist in Area 31. A moderate (C) certainty is associated with the assigned potential rating because map and borehole data provide direct and indirect evidence to indicate plutonic rocks do not exist at the surface in the Northern Seaman Range, and to depths of less than 1,800 feet in Coal Valley (Bunch and Harrill, 1984). Geophysical data provides indirect evidence indicating that plutonic rocks do not exist in the subsurface in the northern Seaman Range south of Timber Mountain Pass (DuBray et al., 1987).

Potential/Certainty for Metallic Minerals Associated with Epithermal Systems: H/B. A high (H) potential for metallic mineral occurrences related to epithermal systems was assigned to Area 31 because of minor mercury ore production from epithermal deposits in similar geology nearby. Approximately 1 mile southeast of the southeastern corner of area 31, The Red Head claims have produced minor amounts of mercury ore from a similar structural environment, and in the same geologic units commonly exposed in Area 31 (DuBray et al., 1987). A low (B) certainty is associated with the assigned potential rating because surface mapping provides only indirect evidence in support of this rating. Indirect evidence includes the mapped occurrence of geologic conditions similar to those at the producing mine (DuBray and Hurtubise, 1994).

AREA 32 – Area 32 is located at Timber Mountain Pass at the crest of the northern Seaman Range. Older Quaternary alluvium is exposed in floor of the easterly trending valley at Timber Mountain Pass. North of the pass, Shingle Pass Tuff and Needles Range Group volcanic rocks underlie area 32. Two easterly striking normal faults with down-to-the-north motion cut the Shingle Mountain Tuff and Needles Mountain Group rocks just north of Timber Mountain Pass. South of the pass, exposures of Pennsylvanian, Mississippian, Devonian, and Silurian Rocks are present. The Paleozoic section is cut by numerous high angle normal faults trending northerly and easterly, with down-to-the-west and down-to-the-north displacements, respectively (DuBray and Hurtubise, 1994; DuBray, et al., 1987).

Potential/Certainty for Metallic Minerals Associated with Plutonic Rocks: L/C. A low (L) potential for pluton-related metallic mineral occurrences was assigned to this area because occurrences of metallic mineral deposits associated with plutonic rocks are not known to exist in Area 32. A moderate (C) certainty is associated with the assigned potential rating because map data provide direct evidence to indicate plutonic rocks do not exist at the surface in the Northern Seaman Range (DuBray and Hurtubise, 1994). Geophysical data provide indirect evidence indicating that plutonic rocks do not exist in the subsurface in the northern Seaman Range south of Timber Mountain Pass (DuBray et al. 1987).

Potential/Certainty for Metallic Minerals Associated with Epithermal Systems: H/C. A high (H) potential for metallic mineral occurrences related to epithermal systems was assigned to Area 32 because of minor known mercury ore production from epithermal deposits immediately adjacent to the area. Small quantities of Mercury ore were mined from the Red Head Claims, located less than ¼ mile south of Area 32 near Timber Mountain Pass. At the Red Head claims, cinnabar-bearing veinlets occur in hydrothermally altered and brecciated Joana and West Mountain Limestones associated with jasperoid (silicified dolomite) zones (DuBray et al., 1987). Similar jasperoid zones are mapped in the same geologic units southwest of Timber Mountain Pass within the southwestern part of Area 32 (DuBray and Hurtubise, 1994). A moderate (C) certainty is associated with the assigned potential rating because surface mapping and geochemical data provide direct evidence in support of this rating. The direct evidence includes the presence of producing geology immediately adjacent to the area, and the mapped occurrence of a similar geologic environment within the southwestern part of Area 32. Geochemical analyses of stream-sediment samples from the area indicate anomalous arsenic, antimony, barium, cadmium, silver, and zinc (DuBray, et al., 1987).

AREA 33 – Area 33 is located in the northern Seaman Range, just southeast of Timber Mountain Pass. Devonian and Silurian limestone and dolomite are exposed in the southern part of the area; Quaternary fan alluvium underlies the remainder of the area. The exposures of Devonian and Silurian carbonate beds dip primarily to the south or southwest, and are cut by a complex system of several high-angle normal faults. The Prospect Fault, just west of Area 33, separates surface exposures of Mississippian and Pennsylvanian rocks with known metallic mineral production from the Silurian and Devonian rocks exposed in Area 33 (DuBray and Hurtubise, 1994; DuBray, et al., 1987)

Potential/Certainty for Metallic Minerals Associated with Plutonic Rocks: L/C. A low (L) potential for pluton-related metallic mineral occurrences was assigned to this area because occurrences of metallic mineral deposits associated with plutonic rocks are not known to exist in Area 33. A moderate (C) certainty is associated with the assigned potential rating because map data provide direct evidence to indicate plutonic rocks do not exist at the surface in the northern Seaman Range (DuBray and Hurtubise, 1994). Geophysical data provide indirect evidence indicating that plutonic rocks do not exist in the subsurface in the northern Seaman Range southeast of Timber Mountain Pass (DuBray et al. 1987).

Potential/Certainty for Metallic Minerals Associated with Epithermal Systems: H/B. A high (H) potential for metallic minerals associated with epithermal systems was assigned to Area 33 because of known minor production of silver ore associated with an epithermal deposit adjacent to the area in a similar geologic environment. Silver-bearing rocks with minor historic production are present at the FNB Claims, less than 1 mile south of the eastern part of Area 33 (DuBray, et al., 1987). At the FNB Claims, veins of brecciated jasperoid (silicified dolomite) up to 3.5 feet wide containing limonite, specular hematite, copper carbonates, pyrite, and calcite are present in the Devonian Sevy and Simonson Dolomites (DuBray, et al., 1987). Geochemical analysis indicates minor concentrations of Silver in these veins (DuBray, et al., 1987). A low (B) certainty is associated with the assigned potential rating because surface mapping provides only indirect evidence in support of this rating. The indirect evidence includes the presence of the Sevy and Simonson dolomites within Area 33 in a similar structural environment to that of the producing area of the FNB Claims. The structural trend of the FNB Claims cannot be directly traced into Area 33.

AREA 34 – Area 34 is located in the northeastern Seaman Range northeast of Timber Mountain Pass. Shingle Pass Tuff and Needles Range Group volcanic rocks comprise a majority of bedrock outcrops in Area 34, with minor outcrops of Pennsylvanian Ely Limestone in the northern and western part of the area. Quaternary fan alluvium underlies the remainder of the Area 34, including the easterly trending valley at Timber Mountain Pass and the west edge of White River Valley. Three easterly-trending, high-angle normal faults including the Timber Mountain Pass Fault cut the Tertiary volcanic rocks north of Timber Mountain Pass. The two southernmost faults display down-to-the-north displacements, and the northernmost fault shows a down-to-the-north displacement. Exposed Tertiary rocks generally dip gently to the south or southwest (DuBray et al., 1987, DuBray and Hurtubise, 1994).

Potential/Certainty for Metallic Minerals Associated with Plutonic Rocks: L/C. A low (L) potential for pluton-related metallic mineral occurrences was assigned to this area because occurrences of metallic mineralization associated with plutonic rocks are not known to exist in Area 34. A moderate (C) certainty is associated with the assigned potential rating because map data provide direct evidence to indicate plutonic rocks do not exist at the surface in the Northern Seaman Range (DuBray and Hurtubise, 1994).

Potential/Certainty for Metallic Minerals Associated with Epithermal Systems: L/C. A low (L) potential for metallic mineralization associated with epithermal systems was assigned to this area because occurrences of metallic mineralization associated with epithermal systems are not known to exist in Area 34. In the northern Seaman Range, documented occurrences and production of metallic minerals associated with epithermal systems primarily occurs in Mississippian, Devonian, and Silurian carbonate rocks. Area 34 is underlain primarily by Tertiary Shingle Pass Tuff and Needles Range Group volcanic rocks, with only two small exposures of Paleozoic carbonates that do not include units with known epithermal mineralization in the Seaman Range (DuBray and Hurtubise, 1994). In the Tertiary Sheep Pass and Needles Range Group volcanic rocks that comprise a majority of the bedrock in Area 34, no documented metallic mineral occurrences associated with epithermal systems exist. A moderate (C) level of certainty is associated with the assigned potential rating because map data provide direct evidence indicating that Paleozoic rocks with known occurrences or production from epithermal systems are not exposed in Area 34.

AREA 35 – Area 35 encompasses a relatively large part of the corridor. The area extends from the northeastern margin of the Seaman Range southward along White River Valley, then trends eastward and crosses the North Pahroc Range and Dry Lake Valley. In the vicinity of White River Valley, Quaternary and Tertiary sediments underlie Area 35. The Quaternary sediments include relict alluvium near the Sinks, where the White River has no surface flow, and older fan deposits extending from the Seaman Range and the North Pahroc Range. Tertiary sediments include interfingered fine-grained lacustrine sediments and gravelly basin fill. Tertiary sediments are exposed between the distal edges of Quaternary fans and the relict alluvium

(Shannon & Wilson, 2005c). At the west margin of the North Pahroc Range, the steeply west-dipping, down-to-the-west White River Fault displaces Pennsylvanian Ely Limestone against early Miocene volcanic rocks. East of the White River Fault, Area 35 crosses the crest of the North Pahroc Range at an unnamed pass. In this area, the North Pahroc Range is a west-dipping block of Paleozoic sedimentary rocks and Oligocene volcanics cut by numerous north-northeast to north-northwest-trending normal faults (Shannon & Wilson, 2005c). In the North Pahroc range, exposed Paleozoic sedimentary rocks include the Pennsylvanian Ely Limestone, the Mississippian Scotty Wash Quartzite and Chainman Shale, and the Devonian Guilmette Formation (Tschanz and Pampeyan, 1970). Exposed Oligocene volcanic rocks east of the White River Fault include miscellaneous volcanic and sedimentary rocks, the Shingle Pass Tuff, Monotony Tuff, and related tuffs and flows. East of the North Pahroc Range, Area 35 crosses the unconsolidated Quaternary sediments of Dry Lake Valley. These include fine-grained lacustrine sediments interfingered with older fan deposits extending into Dry lake Valley from the North Pahroc and the Chief Ranges (Swadley and Simonds ,1994a).

Potential/Certainty for Metallic Minerals Associated with Plutonic Rocks: L/C. A low (L) potential for pluton-related metallic mineral occurrences was assigned to this area because occurrences of metallic mineralization associated with plutonic rocks are not known to exist in Area 35. A moderate (C) certainty is associated with the assigned potential rating because map data provide direct evidence to indicate plutonic rocks do not exist at the surface in the White River Valley, the North Pahroc Range, or the Dry Lake Valley (Tschanz and Pampeyan, 1970; Swadley and Simonds, 1994a; Scott et al., 1995). Water wells drilled near the alignment indicate thick sequences of alluvium in Dry Lake Valley and White River Valley, providing indirect evidence that plutonic rocks do not exist in the subsurface above approximately 2,000 feet in Dry Lake Valley, and above approximately 500 feet in White River Valley (Bunch and Harrill, 1995; Plume 1996).

Potential/Certainty for Metallic Minerals Associated with Epithermal Systems: L/B. A low (L) potential for metallic mineralization associated with epithermal systems was assigned to this area because occurrences of metallic mineralization associated with epithermal systems are not known to exist in Area 35. A low (B) certainty is associated with the assigned potential rating because surface mapping and nearby water wells provide only indirect evidence in support of the assigned potential rating. Water wells drilled near the corridor indicate thick sequences of alluvium in Dry Lake Valley and White River Valley, providing indirect evidence that epithermal systems do not exist in the subsurface above approximately 2000 feet in Dry Lake Valley, and above approximately 500 feet in White River Valley (Bunch and Harrill, 1995; Plume 1996). Surface mapping in the North Pahroc Range provides only indirect evidence in support of the assigned potential rating by indicating the presence of volcanic rocks in the North Pahroc Range. Documented occurrences of epithermal systems in the North Pahroc Range, however, do not exist in pertinent literature.

AREA 36 – The western side of Area 36 skirts the north margin of the Robber Roost Hills and the south margin of the Bluffs and the Black Canyon Range along Black Canyon, then trends eastward to cross the northern end of the Chief Range and the southern end of the Highland Range at Bennett Pass. The eastern side of the area extends into Meadow Valley. On the west side of Area 36, the corridor crosses primarily older Quaternary fan deposits on the east side of Dry Lake Valley and in Black Canyon. In this area, a few hills of early Miocene tuff and Oligocene dacite to andesite lava flows protrude from the fan sediments at the Robber Roost Hills. Outcrops of Cambrian Sedimentary rocks are exposed in the Bluffs. Cambrian rocks in the Bluffs include complexly normal faulted Prospect Mountain Quartzite, Pioche Shale, Lyndon Limestone, Chisholm Shale, and Highland Peak Formation (Sleeper, 1989). At the southern margin of the Black Canyon Range, the corridor crosses the north-trending horst block with surface exposures of Cambrian formations, including the Highland Peak Formation, Nopah Formation, and House Limestone. On either side of the horst block of the Black Canyon Range, the corridor is underlain by hills of normal faulted early Miocene Condor Canyon Formation and Harmony Hills and Hiko Tuffs dipping gently away from the range (Sleeper, 1989). Between the Black Canyon Range and the Chief Range, the corridor traverses old Quaternary fan alluvium. At Bennett Pass, which separates the Chief Range to the north, and the Highland Range to the south, the Cambrian Highland Peak Formation, and the Chisholm Shale and Lydon Limestone underlie Area 36. On the west end of the Cambrian exposures at Bennett Pass, a north-trending, high-angle, down-to-the-west fault brings brecciated and calcite-veined Highland Peak Formation on the west into contact with Pioche Shale (Burke, 1991). East of Bennett pass, the Corridor descends into Meadow Valley, alternately crossing old Quaternary fan alluvium and Pliocene to Miocene lakebeds of the Panaca Formation (Shannon & Wilson, 2005c).

Potential/Certainty for Metallic Minerals Associated with Plutonic Rocks: L/B. A low (L) potential for pluton-related metallic mineral occurrences was assigned to this area because occurrences of metallic mineralization associated with plutonic rocks are not known to exist in Area 36. A low (B) certainty is associated with the assigned potential rating because surface mapping provides only indirect evidence in support of the potential rating. While mapping does not indicate the presence of plutonic rocks at the surface within Area 36, plutonic rocks are known to exist at the surface in the southeastern Chief Range approximately 5 miles south southeast of Bennett Pass (Rowley et al., 1994, Burke, 1991).

Potential/Certainty for Metallic Minerals Associated with Epithermal Systems: L/B. A low (L) potential for metallic mineralization associated with epithermal systems was assigned to this area because occurrences of metallic mineralization associated with epithermal systems are not known to exist in Area 36. A low (B) certainty is associated with the assigned potential rating because literature and map data provide only indirect evidence in support of the assigned potential rating. While documentation of occurrences of metallic mineralization associated with epithermal systems does not exist in Area 36, literature and map data indicate the presence of volcanic rocks in Area 36, providing indirect evidence of a favorable geologic environment for epithermal systems (Sleeper, 1989; Burke, 1991).

AREA 37 – Area 37 is located east of the Chief Range and south of Panaca in Meadow Valley. Quaternary alluvium and Pliocene to Miocene lakebeds of the Panaca Formation underlie the entirety of Area 37 (Shannon & Wilson, 2005c). The southeast boundary of the area is less than 2 miles north of the inferred buried topographic wall of Clover Creek Caldera Rowley and Shroba, 1991). In Area 37, neither Tertiary volcanic rocks nor Paleozoic rocks are inferred to exist in the near subsurface.

Potential/Certainty for Metallic Minerals Associated with Plutonic Rocks: L/C. A low (L) potential for pluton-related metallic mineral occurrences was assigned to this area because occurrences of metallic mineralization associated with plutonic rocks are not known to exist in Area 37. A moderate (C) certainty is associated with the assigned potential rating because the available map data provide direct evidence in support of this potential rating. Area 37 contains no bedrock exposures (Rowley and Shroba, 1991; Tschanz and Pampeyan, 1970).

Potential/Certainty for Metallic Minerals Associated with Epithermal Systems: L/C. A low (L) potential for metallic mineralization associated with epithermal systems was assigned to this area because occurrences of metallic mineralization associated with epithermal systems are not known to exist in Area 37. A moderate (C) certainty is associated with the assigned potential rating because the available map data provide direct evidence in support of this potential rating. Tschanz and Pampeyan (1970) and Rowley and Shroba (1991) indicate that Area 37 contains no bedrock exposures.

AREA 38 – Area 38 adjoins the southeastern end of the Chief Range along Meadow Valley. Quaternary alluvium and Pliocene to Miocene Lakebeds of the Panaca Formation underlie the northern portion of the area, with Quaternary alluvium extending southward along Meadow Valley Wash. Miocene tuffs, lava flows, breccia, and intrusive plugs and dikes comprise bedrock outcrops in most of the central and southern part of the area, with a relatively small exposure of Cambrian Highland Peak Formation rocks along the southeastern flank of the Chief Range (Shannon & Wilson, 2005c; Tschanz and Pampeyan, 1970, Rowley et al., 1994). Numerous faults of the southeast trending Chief Canyon Fault zone extend across volcanic rocks in the southern part of the area. These faults dip to the NE or SE at angles known to range from 58° to 84°, exhibit either down-to-the-NE or down-to-the-SE vertical displacement, and commonly show right-lateral movement in addition to vertical displacement (Shannon & Wilson, 2005c). Area 38 is within and adjacent to the inferred topographic wall of Clover Creek Caldera.

Potential/Certainty for Metallic Minerals Associated with Plutonic Rocks: L/B. A low (L) potential for pluton-related metallic mineral occurrences was assigned to this area because occurrences of metallic mineralization associated with plutonic rocks are not known to exist in Area 38. A low (B) certainty is associated with the assigned potential rating because available literature and surface mapping provide only indirect evidence in support of the potential rating (Rowley et al., 1994; Tschanz and Pampeyan, 1970). While surface mapping indicates the presence of plutonic rocks at the surface within Area 38, associated mineralization is not reported (Rowley et al., 1994). Producing mineralization in the adjacent Chief district appears to be related to epithermal systems.

Potential/Certainty for Metallic Minerals Associated with Epithermal Systems: H/B. A high (H) potential for metallic minerals associated with epithermal systems was assigned to Area 38 because of known production of gold, silver, copper, and lead ores from an epithermal deposit adjacent to the area (see Table 1). The Chief district produced from epithermal veins in quartzite associated with high-angle oblique (dextral-normal) faults, and also from fault breccia within the Stampede Detachment Fault zone (Tschanz and Pampeyan, 1970, Rowley et al., 1994). A moderate (C) level of certainty is associated with the assigned potential rating because available map and cross section data provide only indirect evidence supporting the existence of geologic conditions similar to those in producing areas of the Chief district. Rowley, et al. (1994) indicate that the Highland detachment fault displaces Cambrian Highland Peak Formation carbonate rocks over Cambrian Zabriskie Quartzite immediately adjacent to the southwestern boundary of Area 38. The southwestern part of Area 38 also exhibits high-angle oblique (dextral-normal) faulting displacing Zabriskie Quartzite against Highland Peak Formation.

AREA 39 – Area 39 ascends southward from Meadow Valley along the eastern edge of Miller Bench, and then descends off of Miller Bench to Dutch Flat, the broad valley of Clover Creek near Eccles. Pliocene to Miocene lakebed deposits of the Panaca Formation underlie a majority of Miller Bench, with Quaternary alluvium in west trending washes draining into Meadow Valley. The Panaca Formation lakebeds dip less than 5° in varying directions, and are cut by numerous north-northwest to north-northeast trending normal faults. At the southern end of Area 39 in the low hills south of Clover Creek, outcrops of Miocene age conglomerate, conglomeratic sandstone, and silicic to intermediate tuff crop out (Rowley and Shroba, 1991, Shannon & Wilson, 2005c).

Potential/Certainty for Metallic Minerals Associated with Plutonic Rocks: L/C. A low (L) potential for pluton-related metallic mineral occurrences was assigned to this area because occurrences of metallic mineralization associated with plutonic rocks are not known to exist in Area 39. A moderate (C) certainty is associated with the assigned potential rating because the available literature, map and cross-section data provide some direct evidence in support of this potential rating. Occurrences of metallic mineralization associated with plutonic rocks are not known to occur in the area, and no plutonic rocks are mapped at the surface or inferred to exist in the subsurface within Area 39 (Tschanz and Pampeyan, 1970; Rowley and Shroba, 1991).

Potential/Certainty for Metallic Minerals Associated with Epithermal Systems: L/B. A low (L) potential for metallic mineralization associated with epithermal systems was assigned to this area because occurrences of metallic mineralization associated with epithermal systems are not known to exist in Area 39. A low (B) certainty is associated with the assigned potential rating because the available map and cross section data provide only indirect evidence in support of this potential rating. While this area is inferred to intersect the topographic wall of Clover Creek Caldera, documented occurrences of metallic mineralization associated with epithermal systems are not known in Area 39 (Rowley and Shroba, 1991; Tschanz and Pampeyan, 1970)

AREA 40 – Area 40 starts in Meadow Valley, and ascends eastward along the Big Hogback across the north flank of the Cedar Mountains to Miser Gulch, just east of Little Mountain. Pliocene to Miocene lakebed deposits of the Panaca Formation underlie the westernmost part of Area 40, including the Big Hogback. Eastward, Area 40 ascends across washes of modern alluvium and older Quaternary fan alluvium onto the Cedar Range. Faulted Miocene ash flow tuffs, intermediate composition lava flows, and mudflow breccias underlie Area 40 in the Cedar Range. North-northwest trending down-to-the-east normal faults and east to northeast trending strike-slip faults are inferred to exist in the volcanic and volcanoclastic exposures in the Cedar Range (Rowley and Shroba, 1991, Shannon and Wilson, 2005c).

Potential/Certainty for Metallic Minerals Associated with Plutonic Rocks: L/C. A low (L) potential for pluton-related metallic mineral occurrences was assigned to this area because occurrences of metallic mineralization associated with plutonic rocks are not known to exist in Area 40. A moderate (C) certainty is associated with the assigned potential rating because the available literature, map and cross-section data provide some direct evidence in support of this potential rating. Occurrences of metallic mineralization associated with plutonic rocks are not known to occur in the area, and no plutonic rocks are mapped at the surface or inferred in the subsurface within Area 40 (Tschanz and Pampeyan, 1970; Rowley and Shroba, 1991).

Potential/Certainty for Metallic Minerals Associated with Epithermal Systems: L/B. A low (L) potential for metallic mineralization associated with epithermal systems was assigned to this area because occurrences of metallic mineralization associated with epithermal systems are not known to exist in Area 40. A low (B) certainty is associated with the assigned potential rating because the available map and literature data provide only indirect evidence in support of this potential rating. Occurrences of metallic minerals associated with epithermal systems are not known to exist in Area 40 (Tschanz and Pampeyan, 1970). However, only small scale geologic mapping with marginal detail and accuracy is available in the area (Tschanz and Pampeyan, 1970).

AREA 41 – Area 41 descends from the east flank of the Cedar Range onto Miller Flat, then extends into the valley of Sheep Spring Draw just north of Crestline. Lava flows and volcanic mudflow breccia underlie the Cedar Range in the westernmost portion of the area. Eastward, Area 41 crosses Tertiary and Quaternary fan alluvium, Quaternary alluvium, and unnamed Tertiary lacustrine deposits. Tertiary volcanic rocks underlie the southeastern most part of Area 41.

Potential/Certainty for Metallic Minerals Associated with Plutonic Rocks: L/C. A low (L) potential for pluton-related metallic mineral occurrences was assigned to this area because no known occurrences of metallic mineralization associated with plutonic rocks are known to exist in Area 41. A moderate (C) certainty is associated with the assigned potential rating because the available map and literature data provide some direct evidence in support of this potential rating. Tschanz and Pampeyan (1970) indicate no exposures of Plutonic rocks in or near Area 41, and no occurrences of associated metallization in or near Area 41.

Potential/Certainty for Metallic Minerals Associated with Epithermal Systems: L/B. A low potential for metallic mineralization associated with epithermal systems was assigned to this area because occurrences of metallic mineralization associated with epithermal deposits are not known to exist in Area 41. A low (B) level of certainty is associated with the assigned potential rating because map and literature data provide only indirect evidence supporting the assigned potential rating. The Lincoln County geologic map (Tschanz and Pampeyan, 1970) indicates the presence of volcanic rocks in the southern and eastern parts of Area 41. The limited available literature, however, indicates that documented occurrences of metallic mineralization associated with epithermal deposits do not exist in Area 41.

4.2 Nonmetallic/Industrial Minerals Potential

Nonmetallic and industrial mineral resources are, in general, associated with specific rock types and depositional environments. Mineral-deposit models, such as those described for metallic mineral resources (Appendix D), have not been developed for these resources nor are they needed. Mineral potential is based largely on knowledge of the geology of the areas being assessed and, where available, published results from mineral exploration.

This section assesses the mineral potential and associated certainty for 14 mineral commodities (beginning with barite, below). Because the mineral potential and certainty for a particular mineral commodity varies across the corridor, each commodity, in general, is assigned several potential/certainty ratings. Only mineral potential ratings of high (H) and/or moderate (M) are shown in the figures, along with the associated certainty ratings. These ratings are shown for each mineral commodity in the 14 figures in Appendix E staring with barite (Figure E1) and ending with zeolite (Figure E14). Areas of low (L) or unknown mineral potential, for which the existence of resources is unlikely or unknown, are not shown in the figures or discussed in the text.

Appendix D (see D.2) contains detailed descriptions of the nonmetallic and industrial minerals assessed in this section.

4.2.1 Barite

Highest Rating for Mineral Potential and Associated Certainty: H/B. Figure E1 (in Appendix E) shows the resource potential and associated certainty ratings for barite. Areas assigned a moderate (M) potential are associated with the vein-type deposits in Paleozoic rocks near Warm Springs Summit. A low (B) certainty is associated with the assigned potential rating because the available map data provide only indirect evidence indicating that the deposits at Warm Springs project into the corridor (Kleinhampl and Ziony, 1985).

4.2.2 Carbonate Rock (Limestone and Dolomite)

Highest Rating for Mineral Potential and Associated Certainty: H/C. Figure E2 (in Appendix E) shows the resource potential and associated certainty ratings for limestone and dolomite. Areas assigned a high (H) potential are associated with exposures (occurrences) or inferred subsurface projections of Paleozoic limestone and dolomite in the central and eastern parts of the corridor and at Bare Mountain at the western end of the corridor. A moderate (C) certainty is associated with the assigned potential rating because the available map data provide some direct evidence in support of this potential rating. Areas of inferred subsurface projections of exposed Paleozoic rocks are assigned a moderate (M) potential and a low (B) certainty rating because available map data provide only indirect evidence in support of the associated potential rating.

4.2.3 Clay

Highest Rating for Mineral Potential and Associated Certainty: H/C. Figure E3 (in Appendix E) shows the resource potential and associated certainty ratings for clay resources. Areas assigned a high (H) potential are associated with occurrences the Panaca Formation in the eastern part of the corridor, occurrences of bentonite clays near Scotty's Junction and Sarcobatus Flat (near Beatty), and the occurrences of alunite clays in the Bare Mountain mining district. A moderate (C) certainty is associated with the assigned potential ratings because the available literature data provide some direct evidence in support of this potential rating.

4.2.4 Decorative and Dimension Stone

Highest Rating for Mineral Potential and Associated Certainty: M/B. Figure E4 (in Appendix E) shows the resource potential and associated certainty ratings for decorative and dimension stone. Areas assigned a moderate (M) potential are associated with occurrences of decorative stone in the Thirsty Canyon Tuff near Oasis Valley. A low (B) certainty is associated with the assigned potential rating because the available data provide only indirect evidence in support of this potential rating.

4.2.5 Diatomite

Highest Rating for Mineral Potential and Associated Certainty: H/B. Figure E5 (in Appendix E) shows the resource potential and associated certainty ratings for diatomite. Areas assigned a high (H) potential are associated with the projection of diatomite occurrences in the Panaca Formation to adjacent parts of the corridor south of the town of Panaca. A low (B) certainty is associated with the assigned potential rating because the available map and literature data provide only indirect evidence in support of this potential rating (Tschanz and Pampeyan, 1970).

4.2.6 Fluorspar/Fluorite

Highest Rating for Mineral Potential and Associated Certainty: M/B. Figure E6 (in Appendix E) shows the resource potential and associated certainty ratings for fluorspar/fluorite.

The area assigned a moderate (M) potential is associated with the inferred extension of favorable geologic terrain from the Goldfield mining district into the adjacent parts of the corridor. A low (B) certainty is associated with the assigned potential rating because the available map and literature data provide only indirect evidence in support of this potential rating.

4.2.7 Natural Aggregate (including Sand and Gravel)

Highest Rating for Mineral Potential and Associated Certainty: H/C. Figure E7 (in Appendix E) shows the resource potential and associated certainty ratings for natural aggregate (sand and gravel, crushed stone, and volcanic cinder). Areas assigned a high (H) potential are associated with all alluvial valleys within the corridor (sand and gravel), the mountainous areas where carbonate rock, quartzite, rhyolite, and traprock are exposed (for crushed stone), and small areas of volcanic cinder in Crater Flat east of Beatty. A moderate certainty is associated with the assigned potential rating because the available map and literature data provide some direct evidence in support of the associated potential rating.

The small areas on Figure E7 that are shown as white are playas; these fine grained deposits usually found in these areas have low to no potential for sand and gravel, crushed stone, and volcanic cinder.

4.2.8 Perlite

Highest Rating for Mineral Potential and Associated Certainty: H/C. Figure E8 (in Appendix E) shows the resource potential and associated certainty ratings for perlite. Areas assigned a high (H) potential are associated with geologic projections from known occurrences within the Caliente mining district to adjacent parts of the corridor. A moderate (C) certainty is associated with the assigned potential rating because the available map and literature data provide only indirect evidence in support of this potential rating.

4.2.9 Pozzolan

Highest Rating for Mineral Potential and Associated Certainty: H/B. Figure E9 (in Appendix E) shows the resource potential and associated certainty ratings for pozzolan. Areas assigned a high (H) potential are near Panaca and are associated with historic pozzolan production from volcanic ash beds in Pliocene to Miocene lacustrine deposits of the Panaca

Formation. A low (B) certainty is associated with the assigned potential rating because the available map and literature data provide only indirect evidence indicating that similar deposits may extend into the corridor.

4.2.10 Pumice/Pumicite

Highest Rating for Mineral Potential and Associated Certainty: M/C. Figure E10 (in Appendix E) shows the resource potential and associated certainty ratings for pumice and pumicite. Areas assigned a moderate (M) potential are associated with the inferred projection of favorable volcanic terrain from areas known to contain pumice and pumicite to the corridor (near Beatty, Panaca, and the Bare Mountain mining district). A moderate (C) certainty is associated with the assigned potential rating because the available data provide only indirect evidence in support of this potential rating.

4.2.11 Saline Minerals

Highest Rating for Mineral Potential and Associated Certainty: M/B. Figure E11 (in Appendix E) shows the resource potential and associated certainty ratings for saline minerals. Areas assigned a moderate (M) potential are associated with the playa lakebeds in Sarcobatus Flat, Mud Lake, Dry Lake Valley, and Stonewall Flat. A low (B) certainty is associated with the assigned potential rating because the available data provide only indirect evidence in support of this potential rating.

4.2.12 Silica

Highest Rating for Mineral Potential and Associated Certainty: H/B. Figure E12 (in Appendix E) shows the resource potential and associated certainty ratings for silica. Areas assigned a high (H) potential are associated with inferred extensions of favorable geology from known silica-mining areas (e.g., the Bare Mountain and Cuprite mining districts) into the corridor. A low (B) certainty is associated with the assigned potential rating because the available data provide only indirect evidence in support of this potential rating. Areas assigned a moderate (M) potential are associated with exposed Tertiary volcanic rocks (throughout the corridor). A low (B) certainty is associated with the assigned potential rating because the available data provide only indirect evidence in support of this potential rating.

4.2.13 Sulfur

Highest Rating for Mineral Potential and Associated Certainty: H/C. Figure E13 (in Appendix E) shows the resource potential and associated certainty ratings for sulfur. Areas assigned a high (H) potential are associated with geologic projections from areas with known production of sulphur in the Cuprite mining district to adjacent parts of the corridor. A moderate (C) certainty is associated with the assigned potential rating because the available data provide some indirect evidence in support of this potential rating.

4.2.14 Zeolites

Highest Rating for Mineral Potential and Associated Certainty: H/C. Figure E14 (in Appendix E) shows the resource potential and associated certainty ratings for zeolites. Areas assigned a high (H) potential are associated with the inferred extension of favorable geologic terrain (ash flow tuffs) to the corridor. These favorable terrains include the Bullfrog, Transvaal, and Bare Mountain mining districts near Beatty; the Goldfield mining district; and a small area south of Caliente. A moderate (C) certainty is associated with the assigned potential rating because the available data provide some indirect evidence in support of this potential rating.

4.3 Oil and Gas Potential

Appendix D (see D.3) contains detailed descriptions of the three oil and gas "plays" mentioned in this section.

Highest Rating for Oil and Gas Potential and Associated Certainty: M/B. Plate 2 shows the resource potential and associated certainty ratings for oil and gas. Areas assigned a moderate (M) potential include (a) valleys east of Reveille Valley (approximate longitude 116° 30’) with respect to the Unconformity “A” play (similar to the fields in Railroad Valley), (b) the hypothetical Late Paleozoic play anywhere east of Reveille Valley, and (c) the hypothetical Late Paleozoic-Mesozoic (Central Nevada) Thrust Belt play anywhere east of Reveille Valley. A low (B) certainty is associated with these potential ratings because the available data provide only indirect evidence in support of these ratings.

Areas of low (L) oil and gas potential, for which the existence of resources is unlikely to exist, are not shown in Plate 2. These areas lie generally west of Reveille Valley based on a lack of favorable geologic characteristics for oil accumulation, as well unfavorable thermal conditions described by Harris et al. (1980).

4.4 Geothermal Potential

Highest Rating for Geothermal Potential and Associated Certainty: H/D. Plate 2 shows the resource *potential* and associated certainty ratings for geothermal resources. Areas assigned a high (H) potential include the hot springs at Warm Springs Summit, the Caliente area, Beatty Warm Springs, Sarcobatus Flat and Scotty's Junction, Stonewall Flat, and Bennett Spring. This rating is associated with known geothermal features within the corridor. A high (D) certainty is associated with the assigned potential rating because the available data provide abundant direct and indirect evidence in support of this potential rating (e.g., warm springs and wells). Areas assigned a moderate (M) potential are associated with the geothermal features near the corridor that can be reasonably projected to exist in adjacent parts of the corridor, such as at Pedro Spring, Cedar Spring, and Panaca Warm Spring (Owl Warm Springs). A low (B) certainty is associated with the assigned potential rating because the available data provide only indirect evidence in support of this potential rating.

4.5 Uranium Potential

Appendix D (see D.4) contains a detailed description of uranium occurrences in Nevada.

Highest Rating for Uranium Potential and Associated Certainty: M/B. Figure E15 (in Appendix E) shows the resource potential and associated certainty ratings for uranium resources. Areas assigned a moderate (M) potential are associated with inferred projections of favorable terrain into the corridor from areas of known anomalous radioactivity north of Caliente and at the Wagner, Bullfrog, and Bare Mountain mining districts. These favorable terrains include Tertiary volcanic rocks, lacustrine sediments, and Cambrian quartzites. A low (B) certainty is associated with the assigned potential rating because the available data provide only indirect evidence in support of this potential rating.

4.6 Gemstone Potential

Highest Rating for Gemstone Potential and Associated Certainty: M/C. Figure E16 (in Appendix E) shows the resource potential and associated certainty ratings for gemstone resources. The area assigned a moderate (M) potential includes Warm Springs Summit. This rating is associated with a known turquoise occurrence within the corridor in W1/2 Sec. 30, T4N, R50E. No recorded production of turquoise is associated with this occurrence. A moderate (C) level of certainty is associated with the assigned potential rating because the available data provide direct evidence in support of this potential rating (e.g., a documented turquoise occurrence).

5.0 RECOMMENDATIONS

Parts of the Caliente corridor contain areas that have been identified in this report as having high potential for mineral resources. The withdrawal would prevent the staking of new mining claims in these high-potential areas, which may restrict operations and future expansion. Therefore, it is recommended that these areas either not be included in the withdrawal or the rail corridor be realigned to avoid these areas. Areas of high potential are identified in the report as Areas 3, 8, 10, 11, 12, 14, 19, 21, 31, 32, 33, and 38, as well as locatable nonmetallic minerals that have been assigned high potential as depicted on the figures in Appendix E.

Existing mining operations and holders of valid existing mining claims would not be affected by the proposed withdrawal because mining rights that existed prior to the withdrawal would be neither extinguished nor limited. The proposed land withdrawal would, however, prevent the staking of new mining claims for the duration of the withdrawal period. It is recommended, therefore, that areas identified as having moderate mineral potential for locatable minerals be studied further, through additional records research, field examination, and consultation with industry, to help determine if reclassification to a high potential is warranted. These areas include Areas 4, 23, and 29, as well as locatable nonmetallic minerals that have been assigned high potential as depicted on the figures in Appendix E. Such a reclassification would subject these areas to the recommendations of the preceding paragraph.

Finally, it is recommended that the withdrawal be terminated as soon as possible so that the affected public lands can be opened to new mineral exploration and potential development.

6.0 REFERENCES

Albers, J.P., and Stewart, J.H., 1972, Geology and mineral deposits of Esmeralda County, Nevada:Reno, Nev., Nevada Bureau of Mines and Geology Bulletin 78, 80 p.

Anna, L.O., Roberts, L.N.R., Potter, C.J., Charpentier, T.C., Klett, T.R., Pollastro, R.M., and Schenk, C.J., 2005, Assessment of the undiscovered oil and gas resources of the eastern Great Basin Province, 2005: U. S Geological Survey Fact Sheet 2005-3053, accessed at http://pubs.usgs.gov/fs/2005/3053/508-FS05-3053.html.

Ashley, R.P., 1975, Preliminary geologic map of the Goldfield Mining District, Nevada: U.S. Geological Survey Miscellaneous Field Studies Map MF-681, scale 1:24,000.

Ashley, R.P., 1990, The Goldfield district, Esmeralda and Nye Counties, Nevada, *in* Shawe, D.R., and Ashley, R.P., eds., Epithermal gold deposits – part 1; Geology and resources of gold in the United States: U.S. Geological Survey Bulletin 1857-H, p.1-7.

Ashley, R.P., and Keith, W.J., 1976, Distribution of gold and other metals in silicified rocks of the Goldfield mining district, Nevada: U.S. Geological Survey Professional Paper 843-B, 17 p., 9 map sheets.

Bagby, W.C. and Berger, B.R., 1985, Geologic characteristics of sediment-hosted, disseminated precious-metal deposits in the western United States, *in* Berger, B.R., and Bethke, P.M., eds., Geology and geochemistry of epithermal systems: Reviews in economic geology: Socorro, N. Mex., Society of Economic Geologists, v. 2, chapter 8, p. 169-202.

Bailey, E.H., and Phoenix, D.A., 1944, Quicksilver deposits in Nevada: Reno, Nev., University of Nevada Bulletin, v. 38, no. 5, 206 p.

Ball, S. H., 1907, A geologic reconnaissance of southwestern Nevada and eastern California: U.S. Geological Survey Bulletin 308, 218 p.

Barker, A. M., and Austin, G. S., 1994, Construction uses: stone, decorative, in Carr, D.D., ed., Industrial minerals and rocks: Littleton, Colo., Society for Mining, Metallurgy, and Exploration, Inc., [P. ?].

Barker, C. E., Fouch, T. D., Grow, J. A, and Peterson, J. A., 1995, Western Great Basin Province (018), *in* Gautier, D. L., Dolton, G. L., Takahashi, K. I., and Varnes, K. L., eds., National assessment of the United States oil and gas resources – results, methodology, and supporting data: U.S. Geological Survey, accessed at http://certnetra.cr.usgs.gov/1995OGData/Region3/PROV18.pdf, 13 p.

Bates, R. L., and Jackson, J. A., eds., 1983, Dictionary of geological terms, (3d ed.): New York, N.Y., Doubleday, 571 p.

Beeman, W. R.; Obuch, R. C.; and Brewton, J. D., 1996, Digital map data, text, and graphical images in support of the 1995 national assessment of United States oil and gas resources: U. S. Geological Survey Digital Data Series 35.

Bell, J. W.; Caskey, S. J.; Ramelli, A. R.; and others, 2004, Pattern and rates of faulting in the central Nevada seismic belt, and paleoseismic evidence for prior beltlike behavior: Bulletin of the Seismological Society of America, v. 94, no. 4, p. 1229-1554.

Bennett, R. A., Davis, J. L., and Wernicke, B. P., 1999, Present-day pattern of Cordilleran deformation in the western United States: Geology, v. 27, no. 4, p. 371-374.

Bennett, R. A., Wernicke, B. P., Niemi, N. A., and others, 2003, Contemporary strain rates in the northern Basin and Range Province from GPS data: Tectonics, v. 22, no. 2, p. 3-1 - 3-31.

Best, M.G., Christiansen, E.H., Deino, A.L., and others, 1989, Excursion 3a-Eocene through Miocene volcanism in the Great Basin of the western United States, *in* Chapin, C.E., and Zidek, J., eds., Field excursions to volcanic terranes in the western United States, volume II, Cascades and intermountain west: New Mexico Bureau of Mines and Mineral Resources Memoir 47, p. 91-133.

Beta Minerals, Inc., 2004, Blackhawk project: accessed at http://www.betaminerals.com/projects.htm.

Bolen, W.B., 1992, Industrial sand and gravel – 1991: U.S. Department of the Interior, Bureau of Mines, 23 p.

Bonham, H.F., Jr., and Garside, L.J., Geology of the Tonopah, Lone Mountain, Klondike, and northern Mud Lake quadrangles, Nevada: Reno, Nev., Nevada Bureau of Mines and Geology Bulletin 92, 142 p.

Bonham, H.F., 1989, Bulk-mineable gold deposits of the western United States, *in* Keays, R.R.; Ramsay, W.R.H.; and Groves, D.I., eds, , The geology of gold deposits: the perspective in 1988: New Haven, Conn., Economic Geology Pub. Co., Economic Geology Monograph 6, p. 193-207.

Breese, R. O. Y., 1994, Diatomite, *in* Carr, D.D., ed., Industrial minerals and rocks (6th ed.): Littleton, Colo., Society for Mining, Metallurgy, and Exploration, Inc., p. 397-412.

Bunch, R.L., and Harrill, J.R., 1984, Compilation of selected hydrologic data from the MX missile-siting investigation, east-central Nevada and western Utah: U.S. Geological Survey Open-File Report 84-702, 123 p.

Burke, K.J., 1991, Tertiary extensional tectonism in the northern Chief and southernmost Highland Ranges, Lincoln County, Nevada: Northern Arizona University M.S. thesis, 91 p., 2 pls.

Burt, D.M. and Sheridan, M.F., 1981, Model for the formation of uranium/lithiphile element deposits in fluorine-rich volcanic rocks, *in* Goodell, P.C., and Waters, A.C., eds., Uranium in volcanic and volcaniclastic rocks: Tulsa, Okla., American Association of Petroleum Geologists, Southwest Section Annual Meeting, El Paso, Texas, 1980, , Studies in Geology no. 13. p. 99-109.

Byers, F.M., Carr, W.J., Christiansen, R.L., and others, 1976, Geologic map of the Timber Mountain Caldera area, Nye County, Nevada: U.S. Geological Survey Miscellaneous Investigation Series Map I-891, scale 1:48,000.

Byers, F.M., Carr, W.J., and Orkild, P.P., 1989, Volcanic centers of southwestern Nevada; evolution of understanding, 1960-1988: Journal of Geophysical Research, B, Solid Earth and Planets, v. 94, no. 5, p. 5908-5924.

Carr, M.D., Sawyer, D.A., Nimz, Kathryn, Maldonado, Florian, and Swadley, W.C., 1996, Digital bedrock geologic map database of the Beatty 30 x 60-minute quadrangle, Nevada and California: U.S. Geological Survey Open-File Report 96-291, scale: 1:100,000.

Castleworth Ventures, Inc., 2004, Castleworth receives scoping study of Pan Gold Project: News release, February 21, accessed at http://www.castleworth.com.

Charpentier, R. R., Klett, T. R., Obuch, R. C., and Brewton, J. D., 1996, Tabular data, text, and graphical images in support of the 1995 national assessment of United States oil and gas resources: U. S. Geological Survey Digital Data Series 36.

Cochran, E.H., 1951, Perlite resources, Meadow Valley area, Clark and Lincoln Counties, Nevada, Beaver and Millard Counties, Utah: Los Angles, Calif., Union Pacific Railroad Co.

Cole, J.C., and Cashman, P.H., 1999, Structural relationships of pre-Tertiary rocks in the Nevada Test Site region, southern Nevada: U.S. Geological Survey Professional Paper 1607, 39 p.

Cornwall, H.R., 1972, Geology and mineral resources of southern Nye County, Nevada: Reno, Nev., Nevada Bureau of Mines and Geology Bulletin 77, 49 p.

Cornwall, H.R., and Kleinhampl, F.J., 1961, Geology of the Bare Mountain quadrangle: U.S. Geological Survey Geologic Quadrangle Map GQ157, scale 1:62,500.

Cox D. P., and Singer, D. A., eds., 1986, Mineral deposit models: U.S. Geological Survey Bulletin 1693, 125 p.

Dana, E. S., 1932, A textbook of mineralogy (4th ed.): New York, N.Y., John Wiley, 851 p.

Davis, D. A., 2003, Oil and gas, *in* The Nevada mineral industry: Reno, Nev., Nevada Bureau of Mines and Geology Special Publication MI-2003, 81 p.

Dickinson, W.R., 2003, The Basin and Range Province as a composite extensional domain, *in* Klemperer, S.L., and Ernst, W.G., eds., The lithosphere of North America and its geophysical characterization: Columbia, Md., Bellwether Publishing, Ltd., p. 213-250.

Diggles, M. F., Saunders, J. A., Ponce, D. A., and others, 1986, Mineral resources of the South Reveille Wilderness Study Area, Nye County, Nevada: U. S. Geological Survey Bulletin 1731-C, 11 p.

DuBray, E. A., Blank, H. R. Jr., Turner, R. L., and others, 1987, Mineral resources of the Weepah Spring Wilderness Study area, Lincoln and Nye Counties, Nevada: U. S. Geological Survey Bulletin 1728-E, 11 p.

DuBray, E. A., Blank, H. R. Jr., and Wood, R. H. II, 1986, Mineral resources, geology, and geophysics of the Worthington Mountains Wilderness Study area, Lincoln County, Nevada: U. S. Geological Survey Bulletin 1728-A, 11 p.

DuBray, E.A. and Hurtubise, D.O., 1994, Geologic map of the Seaman Range, Lincoln and Nye counties, Nevada: U. S. Geological Survey Miscellaneous Investigations Series Map I-2282.

Ekren, E.B.; Anderson, R.E.; Rogers, C.L.; and Noble, D.C., 1971, Geology of northern Nellis Air Force Base Bombing and Gunnery Range, Nye County, Nevada: U.S. Geological Survey Professional Paper 651, 91 p.

Ekren, E.B., Bucknam, R.C., Carr, W.J., and others, 1976, East-trending structural lineaments in central Nevada: U.S. Geological Survey Professional Paper 986, 16 p.

Energy Information Administration, 2005, Nevada natural gas production (MMCF): accessed at http://tonto.eia.doe.gov/dnav/ng/hist/na1160_snv_2a.htm.

ENSR Corp, 2004, Draft mineral potential report for Ely BLM district resource management plan, White Pine, Lincoln, and northeastern Nye Counties, Nevada: Fort Collins, Colo., ENSR, prepared for U. S. Bureau of Land Management, Ely District, Nev.

Eureka Miner, 1972: Eureka, Nevada, February 25, p. 4.

Fant, J.B., 1996, Mineral potential report for the proposed direct public sale, N-51513: Ely, Nev., U.S. Department of Interior, Bureau of Land Management, 34 p.

Faunt, C.C., 1997, Effect of faulting on ground-water movement in the Death Valley region, Nevada and California: U.S. Geological Survey Water-Resources Investigations Report 95-4132, 42 p.

Ferguson, H.G., 1917, The Golden Arrow, Clifford, and Ellendale districts, Nye County, Nevada: U.S. Geological Survey Bulletin 640-F, p. 113-123.

Free, D.W., 2004, Silver Bells project case file N-78557: Ely, Nev., U.S. Department of Interior, Bureau of Land Management, Environmental Assessment NV-040-04-022, 34 p.

Fridrich, C.J., 1998, Tectonic evolution of the Crater Flat Basin, Yucca Mountain region, Nevada: U.S. Geological Survey Open-File Report 98-33, 43 p.

Fridrich, C.J., Minor, S.A., and Mankinen, E.A.., 1999a, Geologic evaluation of the Oasis Valley, Nye County, Nevada: U.S. Geological Survey Open-File Report 99-533-A, 55 p.

Fridrich, C.J., Minor, S.A., Ryder, P.L., and Slate, J.L., 1999, Geologic map of the Oasis Valley Basin and vicinity, Nye County, Nevada: U.S. Geological Survey Open-File Report 99-533-B, 43 p. plus map, scale 1:62,500.Gardner, J.N.; Eddy, A.C.; Goff, F.E.; and Grafft, K.S., 1980, Reconnaissance geologic map of the northern Kawich and southern Reveille Ranges, Nye County, Nevada: Los Alamos, N. Mex., Los Alamos Scientific Laboratory LA-8390-Map UC-51, scale 1:62,500.

Garside, L.J., 1973, Radioactive mineral occurrences in Nevada: Reno, Nev., Nevada Bureau of Mines and Geology Bulletin 81, 121 p.

Garside, L.J., 1994, Nevada low-temperature resource assessment: with a bibliography by D. A. Davis and L. J. Garside: Reno, Nev., Nevada Bureau of Mines and Geology Open-File Report 94-2, 108 p.

Garside, L. J., Hess, R. H., Fleming, K. L., and Weimer, B. S., 1988, Oil and gas developments in Nevada: Reno, Nev., Nevada Bureau of Mines and Geology Bulletin 104, 136 p.

Gautier, D. L., Dolton, G. L., Takahashi, K. I., and Varnes, K. L., eds., 1996, 1995 National assessment of United States oil and gas resources – results, methodology, and supporting data: U. S. Geological Survey Digital Data Series 30, version 2 corrected.

Gese, D.D., and Harris, A.D., 1985, Mineral resources of the Weepah Springs Wilderness Study area, Nye and Lincoln Counties, Nevada: U.S. Bureau of Mines Open-File Report MLA 40-85, 52 p.

Glamis Gold Ltd, [undated.], Daisy Gold Mine: accessed at http://www.glamis.com/mines/daisy.html.

Golconda Resources Ltd., 2004, Gold, platinum and diamond exploration: accessed at http://www.golcondaresources.com.

Grose, T.L., and Smith, G.I., 1989, Geology, *in* Bedinger, M.S., Sargent, K.A., and Langer, W.H., eds., Studies of geology and hydrology in the Basin and Range province, southwestern United States, for isolation of high-level radioactive waste: U.S. Geological Survey Professional Paper 1370-F, p. 5-19.

Hall, S., 1981, A guide to the ghost towns and mining camps of Nye County, Nevada: New York, N.Y., Dodd, Mead, and Co., 162 p.

Harris, A. G., Wardlaw, B. R., Rust, C. C., and Merrill, G. K., 1980, Maps for assessing thermal maturity (conodont color alteration index maps) in Ordovician through Triassic rocks in Nevada and Utah and adjacent parts of Idaho and California: U.S. Geological Survey Miscellaneous Investigations Series Map I-1249.

Hess, R. H., 2001, Nevada oil and gas well map: Reno, Nev., Nevada Bureau of Mines and Geology Open-File Report 2001-7.

Hess, R. H., 2004, Nevada oil and gas well database (NVOILWEL): Reno, Nev., Nevada Bureau of Mines and Geology Open-File Report 04-1, 288 p.

Horton, R. C., 1963, An inventory of barite occurrences in Nevada: Reno, Nev., Nevada Bureau of Mines and Geology Report 4, 18 p.

Hunt, C.B., and Mabey, D.R., 1966, Stratigraphy and structure of Death Valley, California: U.S. Geological Survey Professional Paper 494-A, 160 p.

Imperial Metals Corporation, 2005, Mining and exploration, Sterling property: accessed at http://www.imperialmetals.com/s/Sterling.asp.

Kadey, F. L., Jr., 1990, Diatomite, *in*: Kennedy, B. A., ed., Surface mining (2nd ed.): Littleton, Colo., Society for Mining, Metallurgy, and Exploration, Inc.

Kleinhampl, F.J., and Ziony, J.I., 1984, Mineral resources of northern Nye County, Nevada: Reno, Nev., Nevada Bureau of Mines and Geology Bulletin 99B, 243 p.

Kleinhampl, F.J., and Ziony, J.I., 1985, Geology of northern Nye County, Nevada: Reno, Nev., Nevada Bureau of Mines and Geology Bulletin 99A, 172 p.

Kostick, D. S., 1994, Salt, *in* Carr, D.D., ed., Industrial minerals and rocks (6th ed.): Littleton, Colo., Society for Mining, Metallurgy, and Exploration, Inc.

Kral, V.E., 1951, Mineral resources of Nye County, Nevada: Reno, Nev., Nevada Bureau of Mines and Geology Bulletin 50, 223 p.

Laczniak, R.J., Cole, J.C., Sawyer, D.A., and Trudeau, D.A., 1996, Summary of hydrogeologic controls on ground-water flow at the Nevada Test Site, Nye County, Nevada: U.S. Geological Survey Water-Resources Investigations Report 96-4109, 59 p.

Lawrence, E.F., 1963, Antimony deposits of Nevada: Reno, Nev., Nevada Bureau of Mines and Geology Bulletin 61, 248 p.

Lincoln, F.C., 1923, Mining districts and mineral resources of Nevada: Reno, Nev., Nevada Newsletter Publishing Company, 295 p..

Locke, A., 1912, The ore deposits of Goldfield, Nevada: Engineering and Mining Journal, v. 94, no. 18, p. 797-802, 843-849.

Malhotra, V.M., and Mehta, P.K., 1996, Pozzolanic and cementitious materials: Amsterdam, the Netherlands, Gordon and Breach Publishers.

Metallic Ventures Gold, Inc., 2005a, Focused on gold in Nevada: accessed at http://www.metallicventuresgold.com/s/Home.asp.

Metallic Ventures Gold, Inc., 2005b, Renewal annual information form for the year ended December 31, 2004: Reno, Nev., [number of pages?]

Minor, S.A., Sawyer, D.A., Wahl, R.R., and others, 1993, Preliminary geologic map of the Pahute Mesa 30' X 60' quadrangle, Nevada: U.S. Geological Survey Open-File Report 93-299, scale 1:100,000.

Morrissey, F.R., 1968, Turquoise deposits of Nevada: Reno, Nev., Nevada Bureau of Mines and Geology Report 17, 30 p.

Neubert, J.T., 1986, Mineral resources of the South Reveille Wilderness Study area, Nye County, Nevada: U.S. Geological Survey Bulletin 1731-C, 11 p.

Nevada Bureau of Mines and Geology (NBMG), 1997, The Nevada mineral industry 1997: Reno, Nev., Nevada Bureau of Mines and Geology Mineral Industry List MI-1997.

Nevada Bureau of Mines and Geology (NBMG), 2000, The Nevada mineral industry 2000: Reno, Nev., Nevada Bureau of Mines and Geology Mineral Industry List MI-2000.

Nevada Bureau of Mines and Geology (NBMG), 2001, The Nevada mineral industry 2001: Reno, Nev., Nevada Bureau of Mines and Geology Mineral Industry List MI-2001.

Nevada Bureau of Mines and Geology (NBMG), 2002, The Nevada mineral industry 2002: Reno, Nev., Nevada Bureau of Mines and Geology Mineral Industry List MI-2002.

Nevada Bureau of Mines and Geology (NBMG), 2003, The Nevada mineral industry 2003: Reno, Nev., Nevada Bureau of Mines and Geology Mineral Industry List MI-2003.

Nichols, Gary, 1999, Sedimentology and stratigraphy: Oxford, England, Blackwell Science Ltd, 355 p.

Nogle, D.C., Weiss, S.I., and McKee, E.H., 1991, Magmatic and hydrothermal activity, caldera geology, and regional extension in the western part of the southwestern Nevada volcanic field, *in* Raines, G.L., Lisle, R.E., Schafer, R.W., and Wilkinson, W.H., Geology and ore deposits of the Great Basin: Reno, Nev., Geological Society of Nevada, Symposium proceedings, p. 913-934.

Oldow, J.S., Aiken, C.L.V., Hare, J.L., and others, 2001, Active displacement transfer and differential block motion within the central Walker Lane, western Great Basin: Geology, v. 29, no. 1, p. 19-22.

Olson, R. H., 1990, Zeolites, *in* Kennedy, B. A., ed., Surface mining (2nd ed.): Littleton, Colo., Society for Mining, Metallurgy, and Exploration, Inc.

Pacific Ridge Exploration, Ltd., 2004, No further work planned at Golden Arrow: News release, 27 April, accessed at http://www.pacificridgeexploration.com.

Paher, S.E., 1970, Nevada ghost towns and mining camps: Berkeley, Calif., Howell-North Books, 492 p.

Papke, K.G., 1972, Erionite and other associated zeolites in Nevada: Reno, Nev., Nevada Bureau of Mines and Geology Bulletin 79, 29 p.

Papke, K.G., 1973, Industrial mineral deposits of Nevada: Reno, Nev., Nevada Bureau of Mines and Geology Map 46, scale 1:1,000,000.

Papke, K.G., 1976, Evaporites and brines in Nevada: Reno, Nev., Nevada Bureau of Mines and Geology Bulletin 87, 35 p.

Papke, K.G., 1979, Fluorspar in Nevada: Reno, Nev., Nevada Bureau of Mines and Geology Bulletin 93, 77 p.

Papke, K.G., 1984, Barite in Nevada: Reno, Nev., Nevada Bureau of Mines and Geology Bulletin 98, 125 p.

Papke, K.G., and Castor, S.B., 2003, Industrial mineral deposits in Nevada: Reno, Nev., Nevada Bureau of Mines and Geology Map no. 142, scale 1:1,000,000.

Percival, T.J., Bagby, W.C., and Radtke, A.S., 1988, Physical and chemical features of precious metal deposits hosted by sedimentary rocks in the western United States, *in* Scafer, R.W., Cooper, J.J., and Vikre, P.G., eds., Bulk-mineable precious metal deposits of the western United States: Reno, Nev., Geological Society of Nevada, Symposium proceedings, p. 11-34.

Peterson, J. A, and Grow, J. A., 1995, Eastern Great Basin Province (019), i*n* Gautier, D. L., Dolton, G. L., Takahashi, K. I., and Varnes, K. L., eds., 1995 National assessment of the United States oil and gas resources – results, methodology, and supporting data. U.S. Geological Survey, accessed at http://certmapper.cr.usgs.gov/data/noga95/prov19/text/prov19.pdf, 13 p.

Pool, T. C., 1995, Uranium: a lackluster year: Engineering and Mining Journal, [p. ?]

Potter, C.J., Dickerson, R.P., Sweetkind, D.S., Drake, R.M. II, Taylor, E.M., Fridrich, C.J., San Juan, C.A., and Day, W.C., 2003, Geologic map of the Yucca Mountain Region, Nye County, Nevada: U.S. Geological Survey Miscellaneous Investigations Series Map I-2755, scale 1:50,000.Power, W. R., 1994, Stone, dimension, *in* Carr, D. D. ed., Industrial minerals and rocks: Littleton, Colo., Society for Mining, Metallurgy, and Exploration, Inc., p. 987-1001.

Quade, Jack, Tingley, J.V.; Bentz, J.L., and Smith, P.L., 1984, A mineral inventory of the Nevada Test Site, and portions of the Nellis Bombing and Gunnery Range, southern Nye County, Nevada: Reno, Nev., Nevada Bureau of Mines and Geology Open File Report 84-2, 113 p.

Ransome, 1909, The geology and ore deposits of Goldfield, Nevada: U.S. Geological Survey Professional Paper 66, 258 p.

Ransome, F.L., Emmons, W.H., and Garrey, G.H., 1910, Geology and ore deposits of the Bullfrog district, Nevada: U.S. Geological Survey Bulletin 407, 130 p.

Redhawk Resources, Inc, 2004, High –grade copper in the southwest porphyry copper belt: accessed at http://www.redhawkresources.com/s/Home.asp.

Reiner, S.R., Laczniak, R.J., DeMeo, G.A., Smith, J.L., Elliott, P.E., Nylund, W.E., and Fridrich, C.J., 2002, Ground-water discharge determined from measurements of evapotranspiration, other available hydrologic components, and shallow water-level changes, Oasis Valley, Nye County, Nevada: U.S. Geological Survey Water-Resources Investigations Report 01-4239, 65 p.

Roberts, R. J., 1986, The Carlin story, *in* Tingley, J. V., and Bonham, H. F., eds., Sediment-hosted precious-metal deposits of northern Nevada: Reno, Nev., Nevada Bureau of Mines and Geology Report 40, p. 71-80.

Rowley, P. D., and Shroba, R. R., 1991, Geologic map of the Indian Cove quadrangle: U.S. Geological Survey Geologic Quadrangle Map GQ-1701, scale 1:24,000.

Rowley, P.D.; Shroba, R.R.; Simonds, F.W.; Burke, K.J.; and others, 1994, Geologic map of the Chief Mountain quadrangle, Lincoln County, Nevada: U.S. Geological Survey Geologic Quadrangle Map GQ-1731, scale 1:24,000.

Rowley, P.D., Nealey, David, Unruh, D.M., and others, 1995, Stratigraphy of Miocene ash-flow tuffs in and near the Caliente caldera complex, southeastern Nevada and southwestern Utah, *in* Scott, R.B., and Swadley, W.C., eds., Geologic studies in the Basin and Range-Colorado Plateau transition in southeastern Nevada, southwestern Utah, and northwestern Arizona: U.S. Geological Survey Bulletin 2056, p. 43-88.

Sandberg, R.J., 2004, Alien gold project, Nye County, Nevada. accessed at http://www.redhawkresources.com/i/pdf/ALIENGOLD_Sandberg_Rpt_Sept04.pdf.

Sawyer, B.W., 1931, Gold and silver rushes of Nevada, 1900-1910: Berkeley, Calif., University of California, unpublished M.A. thesis, 172 p.

Scott, R.B., Gromme, C.S., Best, M.G., and others, 1995, Stratigraphic relationships of Tertiary volcanic rocks in central Lincoln County, southeastern Nevada, *in* Scott, R.B., and Swadley, W.C., eds., Geologic studies in the Basin and Range-Colorado Plateau transition in southeastern Nevada, southwestern Utah, and northwestern Arizona: U.S. Geological Survey Bulletin 2056, p. 7-41.

Seabridge Gold, Inc., 2003, Seabridge Gold options Stonewall project to Placer Dome: News release, March 10, accessed at http://www.seabridgegold.net/NMar10_03.pdf.

Seabridge Gold, Inc., 2004, Drilling begins at Seabridge Gold's Clifford project: News release, January 12, accessed at http://www.seabridgegold.net/NJan12_04.pdf.

Shannon & Wilson, Inc., 2005a, Preliminary mineral and energy resource occurrence report, Phase 1, Caliente Rail Corridor, Yucca Mountain project, Nevada: Seattle, Wash., Report to Bechtel SAIC Company, LLC., under contract no. NN-HC4-00197.

Shannon & Wilson, Inc., 2005b, Preliminary ballast and construction materials sources report, Phase1, Caliente Rail Corridor, Yucca Mountain Project, Nevada: Seattle, Wash., Report to Bechtel SAIC Company, LLC, under contract no. NN-HC4-00197.

Shannon & Wilson, Inc., 2005c, Geotechnical report, Phase1, Caliente Rail Corridor, Yucca Mountain Project, Nevada: Seattle, Wash., Report to Bechtel SAIC Company, LLC, under contract no. NN-HC4-00197, 2 volumes, various paging.

Shannon & Wilson, Inc., 2005d, Geotechnical report, Supplement 1, Caliente Rail Corridor, Yucca Mountain Project, Nevada: Seattle, Wash., Report to Bechtel SAIC Company, LLC, under contract no. NN-HC4-00197, various paging.

Sheppard, R. A., 1983, Zeolites in sedimentary rocks, *in* Lefond, S. J., ed., Industrial minerals and rocks (5th ed.): New York, N.Y., American Institute of Mining Metallurgical, and Petroleum Engineers, v. 2, p. 1413-1418.

Sherlock, M. G., Cox, D. P., and Huber, D. F., 1996, Known mineral deposits and occurrences in Nevada, *in* Singer, D. A., ed., An analysis of Nevada's metal-bearing mineral resources: Reno, Nev., Nevada Bureau of Mines and Geology Open-File Report 96-2, chapter 10, p. 10-1 – 10-31.

Shevenell, L., and Garside, L. J., 2003, Nevada geothermal resources: Reno, Nev., Nevada Bureau of Mines and Geology interactive online map, scale 1:750,000.

Sillitoe, R. H., 1988, Gold and silver deposits in porphyry systems, *in* Schafer, R.W., Cooper, J.J., and Vikre, P.G., eds., Bulk-mineable precious metal deposits of the western United States: Reno, Nev., Geological Society of Nevada, Symposium proceedings, p. 233-257.

Simonds, F. W., Whitney, J. W., Fox, K. F., and others, 1995, Map showing fault activity in the Yucca Mountain area, Nye County, Nevada: U.S. Geological Survey Miscellaneous Investigations Series Map I-2520, scale 1:24,000.

Singer, D. A., ed., 1996, An analysis of Nevada's metal-bearing mineral resources: Reno, Nev., Nevada Bureau of Mines and Geology Open-File Report 96-2, 178 p.

Slate, J.L., Berry, M.E., Rowley, P.D., and others, 1999, Digital geologic map of the Nevada Test Site and vicinity, Nye, Lincoln, and Clark Counties, Nevada, and Inyo County, California: U.S. Geological Survey Open-File Report 99-554-A, scale 1:120,000.

Sleeper, K.G., 1989, Structural geology of the Black Canyon Range, The Bluffs, and southwestern Highland Range, Lincoln County, Nevada: Flagstaff, Ariz., Northern Arizona University, M.S. thesis, 113 p.

Snow, J. K., and Lux, D. R., 1999, Tectono-sequence stratigraphy of Tertiary rocks in the Cottonwood Mountains and northern Death Valley area, California and Nevada, *in* Wright, L. A., and Troxel, B. W., eds., Cenozoic basins of the Death Valley region: Boulder, Colo., Geological Society of America Special Paper 333, p. 17-64.

Swadley, W. C., and Simonds, F. W., 1994a, Geologic map of the Deadman Spring SE quadrangle: U.S. Geological Survey Geologic Quadrangle Map GQ-1745, scale 1:24,000.

Swadley, W. C., and Simonds, F. W., 1994b, Geologic map of the Pahroc Spring NE quadrangle: U.S. Geological Survey Geologic Quadrangle Map GQ-1746, scale 1:24,000.

Tepordei, V. V., 1993a, Construction sand and gravel, 1991: U.S. Department of the Interior Bureau of Mines Annual Report, 19 p.

Tepordei, V. V., 1993b, Crushed stone, 1991: U.S. Department of the Interior Bureau of Mines Annual Report, 43 p.

Thatcher, Wayne, Foulger, G. R., Julian, B. R., and others, 1999, Present-day deformation across the Basin and Range Province, western United States: Science, v. 283, no. 5408, p. 1714-1718.

Tingley, J. V., 1984, Trace element associations in mineral deposits, Bare Mountain (Fluorine) Mining District, southern Nye Co., Nevada: Reno, Nev., Nevada Bureau of Mines and Geology Report 39, 28 p.

Tingley, J. V., 1991, Mineral resources of the Timpahute Range 30° by 60° quadrangle: Reno, Nev., Nevada Bureau of Mines and Geology Report 46, 40 p.

Tingley, J. V., 1998, Mining districts of Nevada: Reno, Nev., Nevada Bureau of Mines and Geology Report 47, 128 p.

Tingley, J. V., Castor, S. B., Weiss, S. I., and others, 1998, Mineral and energy resource assessment of the Nellis Air Force Range, U.S. Air Force Combat Command: Reno, Nev., Nevada Bureau of Mines and Geology Open File Report 98-1, 2 v.

Tschanz, C. M., and Pampeyan, E. H., 1970, Geology and mineral deposits of Lincoln County, Nevada: Reno, Nev., Nevada Bureau of Mines and Geology Bulletin 73, 188 p.

U.S. Department of Interior, Bureau of Land Management, 1985, Energy and mineral resource assessment: Washington, D.C., Manual 3031, various paging.-

U.S. Department of Interior, Bureau of Land Management, 1994, Mineral reports – preparation and review: Washington, D.C., Mannual 3060, various paging.-

U.S. Geological Survey National Oil and Gas Resource Assessment Team, 1995, 1995 national assessment of United States oil and gas resources: U. S. Geological Survey Circular 1118, 20 p.

Virta, R. L., 1993, Annual report, clays, 1991: U.S. Bureau of Mines, 43 p.

Wallace, A. B., and Roper, M. W., 1981, Geology and uranium deposits along the northeast margin, McDermitt caldera complex, Oregon, *in* Goodell, P.C., and Waters, A.C., eds., Uranium in volcanic and volcaniclastic rocks: Tulsa, Okla., American Association of Petroleum Geologists Southwest Section Annual Meeting, El Paso, Texas, 1980, Studies in Geology no. 13, p. 73-88.

Wallace, R. E., 1984, Patterns and timing of late Quaternary faulting in the Great Basin province and relation to some regional tectonic features: Journal of Geophysical Research, v. 89, no. B7, p. 5763-5769.

Warren, R.G.; Sawyer, D.A.; Byers, F.M., Jr.; and Cole, J.C., 1998, A petrographic/geochemical database and stratigraphic and structural framework for the southwestern Nevada volcanic field: National Oceanic and Atmospheric Administration, National Geophysical Data Center, accessed at http://queeg.ngdc.noaa.gov/seg/geochem/swnvf.

Wayland, R. G.; Oberlindacher, P.; and Throckmorton, M., 1979, Lands valuable for sodium and potassium, Nevada: U. S. Geological Survey, Conservation Division, Western Region, scale, 1:500,000.

Weiss, S.I., and Noble, D.C., 1989, Stonewall Mountain volcanic center, southern Nevada: Stratigraphic, structural, and facies relations of outflow sheets, near-vent tuffs, and intracaldera units: Journal of Geophysical Research, v. 94, p. 6059-6074.

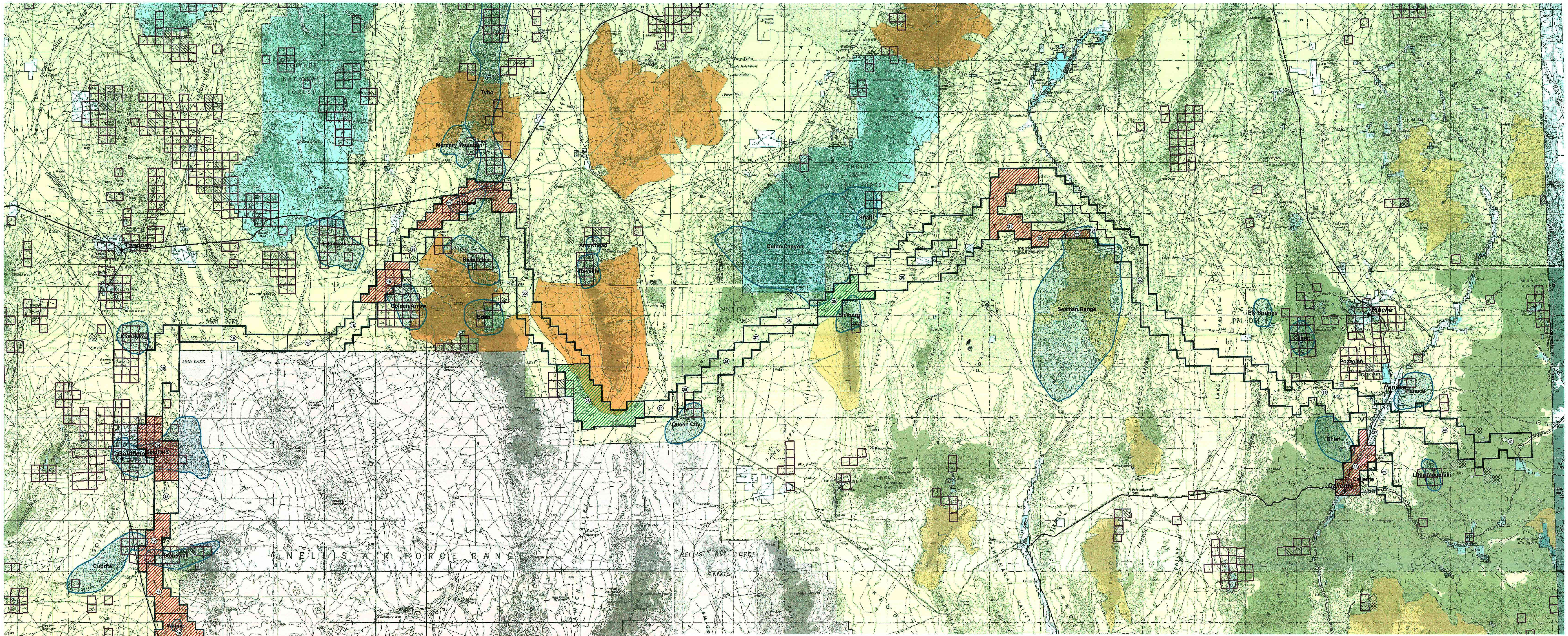
Westgate, L. G., and Knopf, Adolph, 1932, Geology and ore deposits of the Pioche district, Nevada: U.S. Geological Survey Professional Paper 171, 79 p.

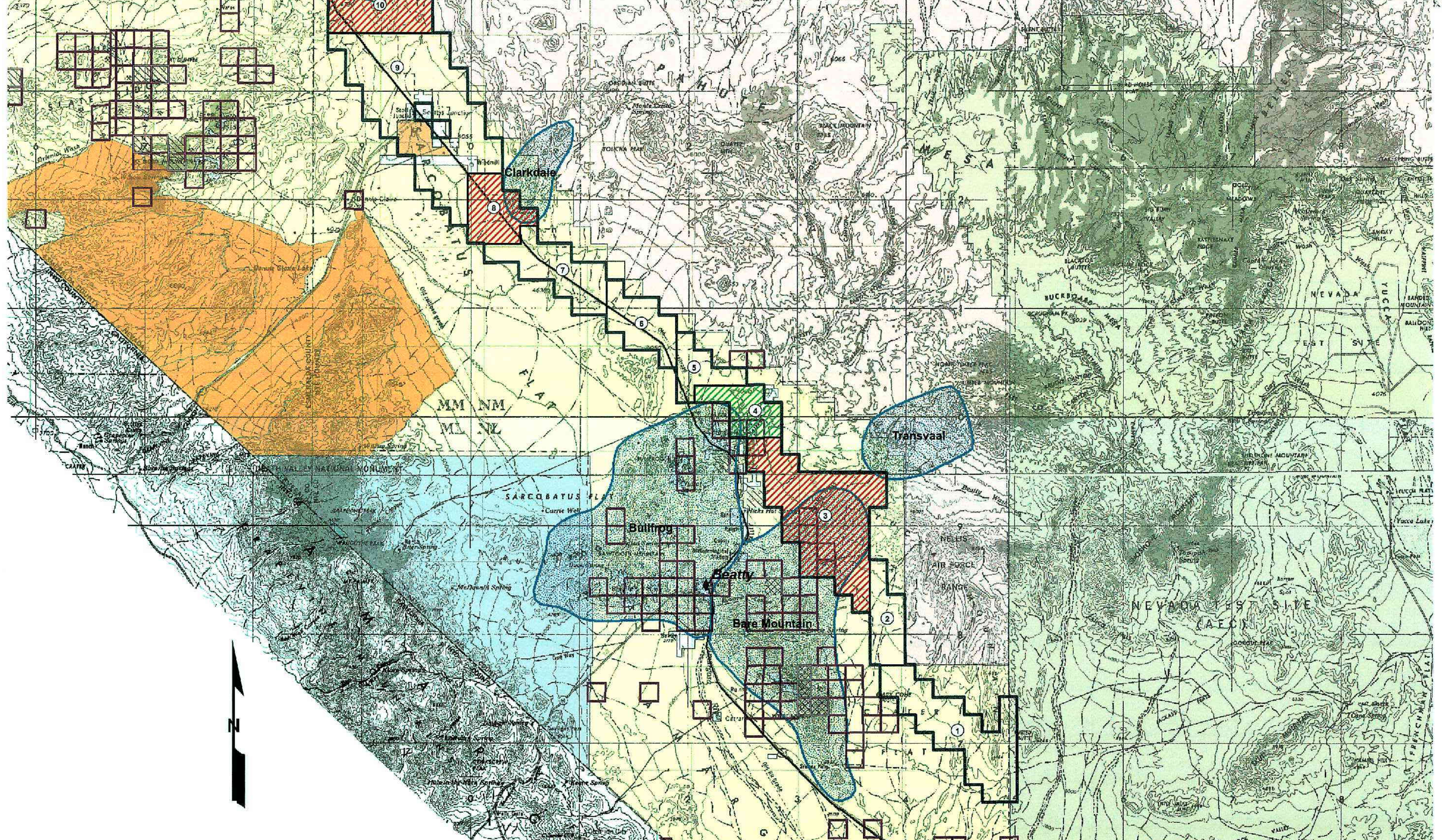
Whitebread, D.H., and John, D.A., 1992, Geologic map of the Tonopah 1^0 by 2^0 quadrangle, central Nevada: U.S. Geological Survey Miscellaneous Field Studies Map MF-1877-A, scale 1:250,000.

Wilson, W. R., 2002, Final environmental assessment for mining plan of operations N75500, Steven W. & Torrie O. Klomp, Wayklo pozzolan mine project: Ely, Nev., U.S. Department of Interior, Bureau of Land Management Environmental Assessment NV-040-02-039, 18 p.

Wilson, W. R., 2004, Mineral potential report Lincoln County competitive land sale, Bennett Springs, N76851: Ely, Nev., U.S. Department of Interior, Bureau of Land Management, 28 p.

Workman, J. B., Menges, C. M., Page, W. R., and others, 2002, Geologic map of the Death Valley ground-water model area, Nevada and California: U.S. Geological Survey Miscellaneous Field Studies Map MF-2381-A, scale 1:250,000.





0 5 10 15 20

Scale in Miles

1:250,000

Created and Edited using ArcMap 9.0 6-27-05

LEGEND

LAND STATUS(4)

- BLM
- BLM WILDERNESS AREA
- BLM WILDERNESS STUDY AREA
- NATIVE AMERICAN RESERVATION (Near Scotty's Junction)
- NATIONAL PARK SERVICE
- NEVADA STATE
- US FOREST SERVICE
- DEPARTMENT OF DEFENSE
- DEPARTMENT OF ENERGY
- PRIVATE LAND
- MINING DISTRICTS
- ACTIVE MINING CLAIMS (One or more per section)
- SURFACE MANAGEMENT NOTICE (Authorized and Pending)
- SURFACE MANAGEMENT PLAN OF OPERATION (Authorized and Pending)
- CITIES AND TOWNS

MINERAL POTENTIAL

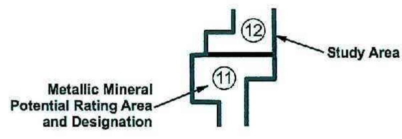
- HIGH POTENTIAL AREA
- MODERATE POTENTIAL AREA
- LOW POTENTIAL AREA

METALLIC MINERAL POTENTIAL RANKING

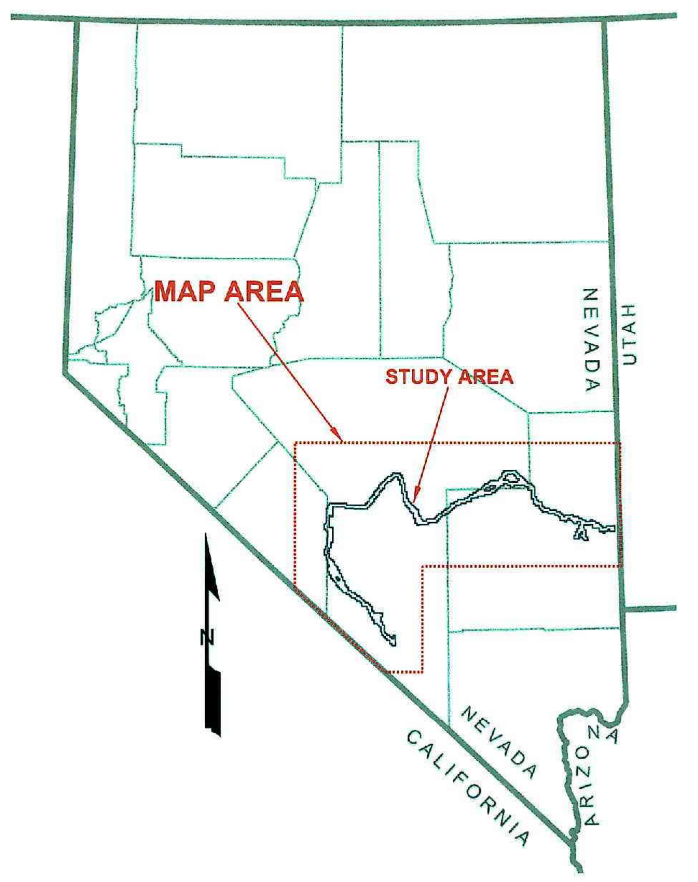
Revised metallic-mineral resource potential ratings as of 11/10/05
(Preliminary and subject to change)

Area	Plutonic	Epithermal
1	L/D	L/B
2	L/D	L/B
3	L/C	H/D
4	L/D	M/C
5	L/D	L/D
6	L/C	L/C
7	L/C	L/C
8	M/B	H/C
9	L/D	L/D
10	H/C	M/B
11	M/B	H/C
12	M/B	H/C
13	L/D	L/B
14	M/B	H/D
15	L/B	L/B
16	L/D	L/D
17	L/D	L/D
18	L/B	L/B
19	L/C	H/C
20	L/D	L/D
21	L/C	H/C
22	L/D	L/B
23	L/D	M/C
24	L/D	L/B
25	L/D	L/B
26	L/D	L/D
27	L/D	L/D
28	L/D	L/D
29	M/B	M/B
30	L/C	L/C
31	L/C	H/B
32	L/C	H/C
33	L/C	H/B
34	L/C	L/C
35	L/C	L/B
36	L/B	L/B
37	L/C	L/C
38	L/B	H/B
39	L/C	L/B
40	L/C	L/B
41	L/C	L/B

Mineral Resource Potential and Level of Certainty							
ND	Potential not determined	**H/B**	High Potential Low Certainty	**H/C**	High Potential Moderate Certainty	**H/D**	High Potential High Certainty
		M/B	Moderate Potential Low Certainty	**M/C**	Moderate Potential Moderate Certainty	**M/D**	Moderate Potential High Certainty
		L/B	Low Potential Low Certainty	**L/C**	Low Potential Moderate Certainty	**L/D**	Low Potential High Certainty
						O/D	No Potential High Certainty



PROJECT LOCATION



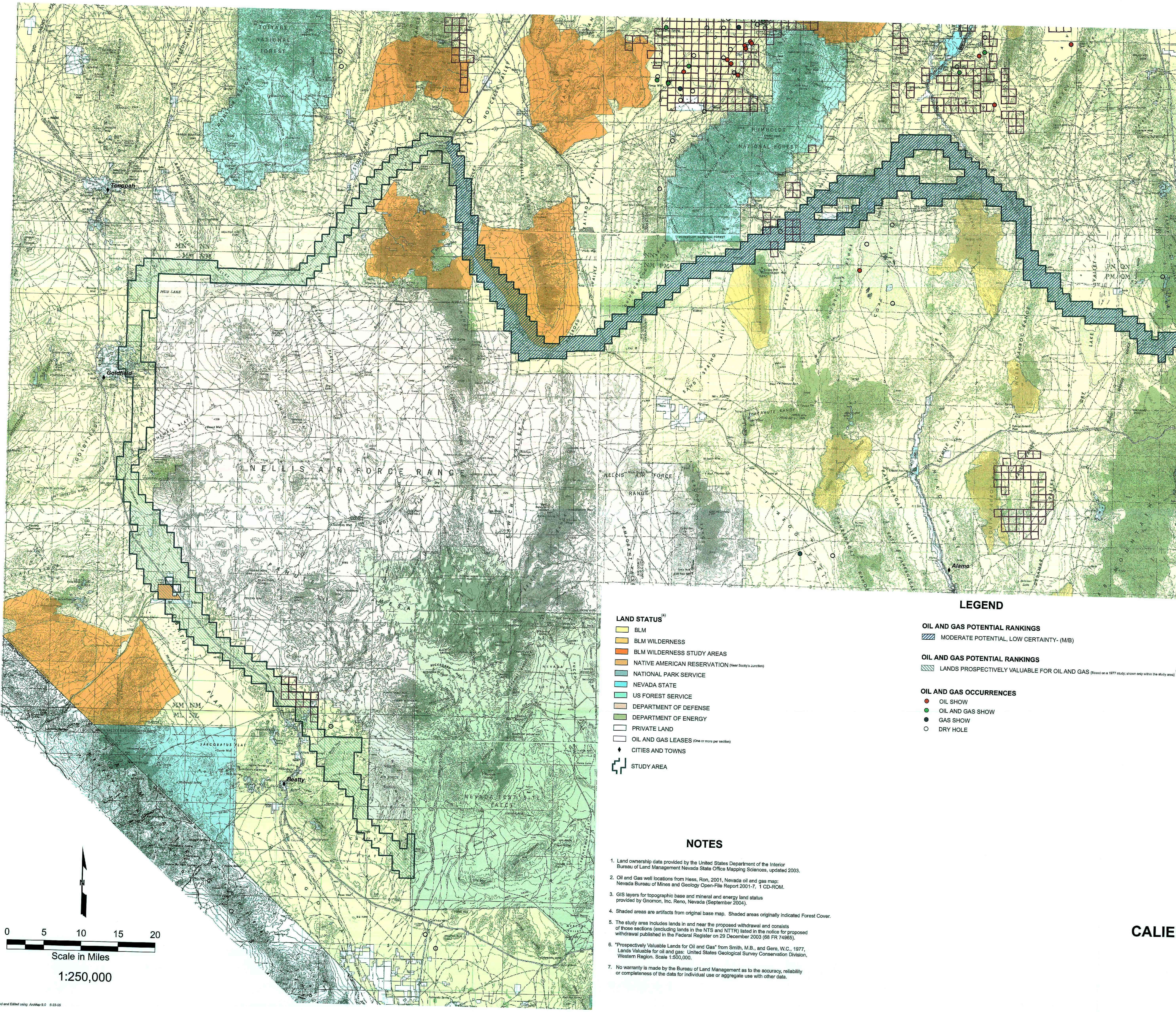
NOTES

1. Land ownership data provided by the United States Department of the Interior Bureau of Land Management Nevada State Office Mapping Sciences, updated 2003.
2. Tingley, J.V., 1998, Mining Districts of Nevada: Nevada Bureau of Mines and Geology Report 47, 128p.
3. GIS layers for topographic base, mining districts, mining claims, surface management, and mineral land status provided by Gnomon, Inc., Reno, Nevada. (September 2004).
4. Shaded areas are artifacts from original base map. Shaded areas originally indicated Forest Cover.
5. The study area includes lands in and near the proposed withdrawal and consists of those sections (excluding lands in the NTS and NTTR) listed in the notice for proposed withdrawal published in the Federal Register on 29 December 2003 (68 FR 74965).
6. The smallest public land subdivision for which the metallic mineral potential was assessed is one section.
7. No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data

CALIENTE RAIL CORRIDOR, NEVADA

Mineral Potential Report

METALLIC MINERAL POTENTIAL
PLATE 1



LEGEND

LAND STATUS(4)

- BLM
- BLM WILDERNESS
- BLM WILDERNESS STUDY AREAS
- NATIVE AMERICAN RESERVATION (Near Scotty's Junction)
- NATIONAL PARK SERVICE
- NEVADA STATE
- US FOREST SERVICE
- DEPARTMENT OF DEFENSE
- DEPARTMENT OF ENERGY
- PRIVATE LAND
- OIL AND GAS LEASES (One or more per section)
- CITIES AND TOWNS
- STUDY AREA

OIL AND GAS POTENTIAL RANKINGS

- MODERATE POTENTIAL, LOW CERTAINTY- (M/B)

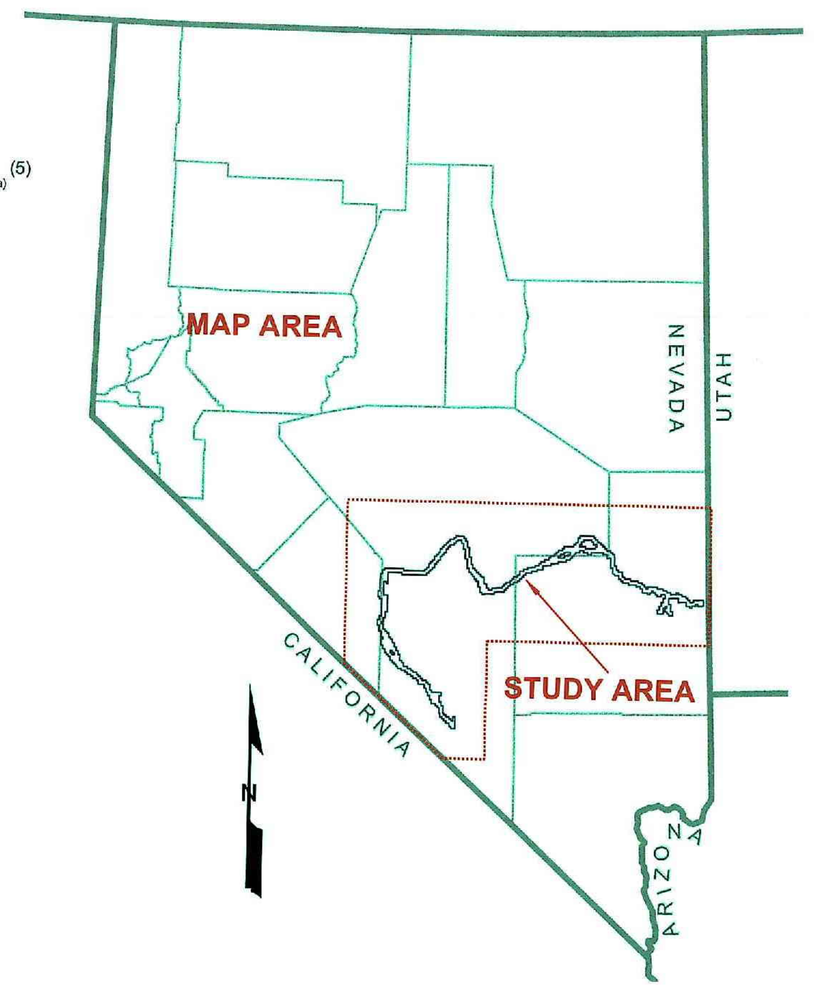
OIL AND GAS POTENTIAL RANKINGS

- LANDS PROSPECTIVELY VALUABLE FOR OIL AND GAS (Based on a 1977 study; shown only within the study area) (5)

OIL AND GAS OCCURRENCES

- OIL SHOW
- OIL AND GAS SHOW
- GAS SHOW
- DRY HOLE

PROJECT LOCATION



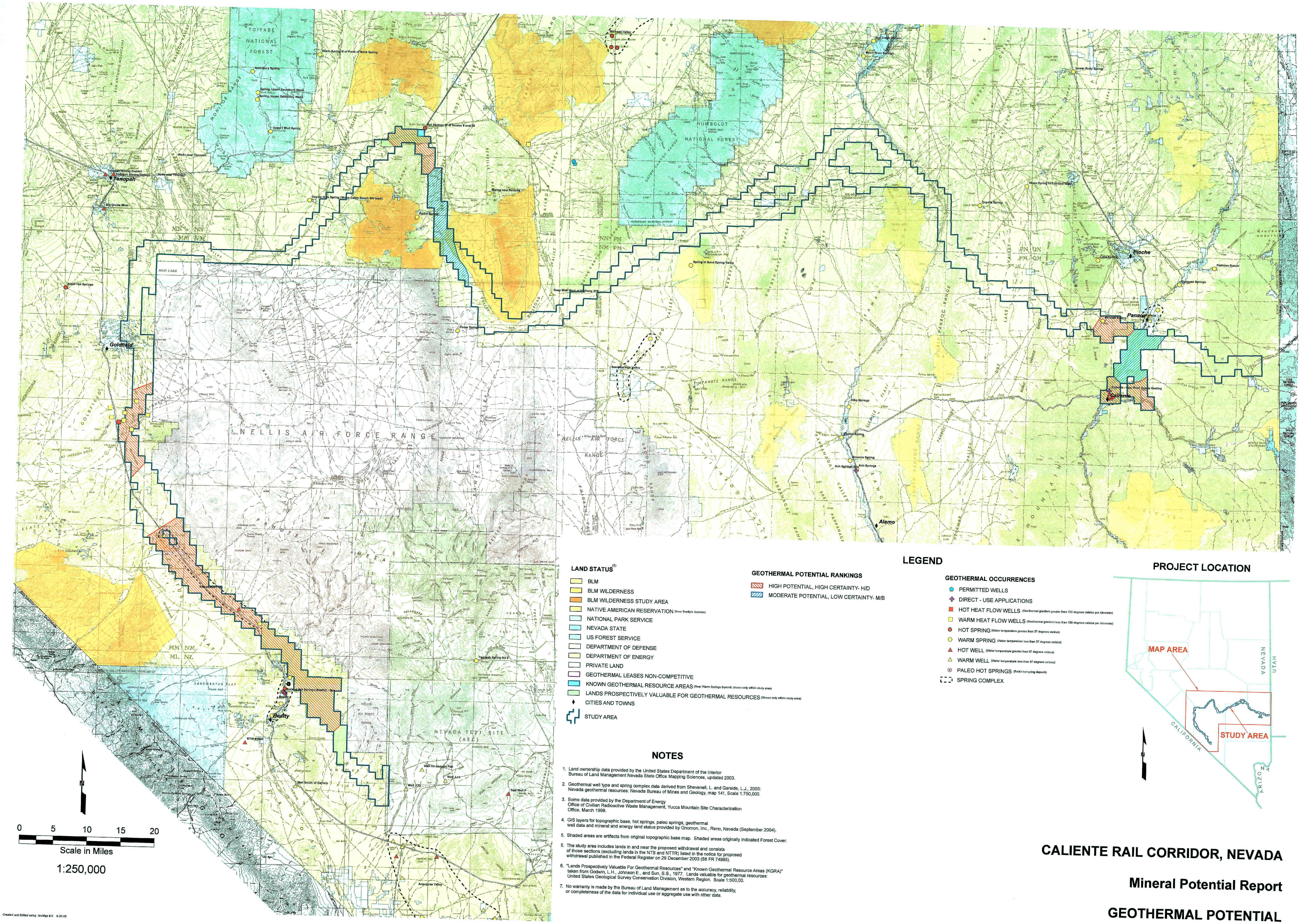
NOTES

1. Land ownership data provided by the United States Department of the Interior Bureau of Land Management Nevada State Office Mapping Sciences, updated 2003.
2. Oil and Gas well locations from Hess, Ron, 2001, Nevada oil and gas map: Nevada Bureau of Mines and Geology Open-File Report 2001-7, 1 CD-ROM.
3. GIS layers for topographic base and mineral and energy land status provided by Gnomon, Inc. Reno, Nevada (September 2004).
4. Shaded areas are artifacts from original base map. Shaded areas originally indicated Forest Cover.
5. The study area includes lands in and near the proposed withdrawal and consists of those sections (excluding lands in the NTS and NTTR) listed in the notice for proposed withdrawal published in the Federal Register on 29 December 2003 (68 FR 74965).
6. "Prospectively Valuable Lands for Oil and Gas" from Smith, M.B., and Gere, W.C., 1977, Lands Valuable for oil and gas: United States Geological Survey Conservation Division, Western Region. Scale 1:500,000.
7. No warranty is made by the Bureau of Land Management as to the accuracy, reliability or completeness of the data for individual use or aggregate use with other data.

CALIENTE RAIL CORRIDOR, NEVADA

Mineral Potential Report

OIL AND GAS POTENTIAL
PLATE 2



LEGEND

LAND STATUS[5]

- BLM
- BLM WILDERNESS
- BLM WILDERNESS STUDY AREA
- NATIVE AMERICAN RESERVATION (Near Scotty's Junction)
- NATIONAL PARK SERVICE
- NEVADA STATE
- US FOREST SERVICE
- DEPARTMENT OF DEFENSE
- DEPARTMENT OF ENERGY
- PRIVATE LAND
- GEOTHERMAL LEASES NON-COMPETITIVE
- KNOWN GEOTHERMAL RESOURCE AREAS (Near Warm Springs Summit; shown only within study area)
- LANDS PROSPECTIVELY VALUABLE FOR GEOTHERMAL RESOURCES (Shown only within study area)
- CITIES AND TOWNS
- STUDY AREA

GEOTHERMAL POTENTIAL RANKINGS

- HIGH POTENTIAL, HIGH CERTAINTY- H/D
- MODERATE POTENTIAL, LOW CERTAINTY- M/B

GEOTHERMAL OCCURRENCES

- PERMITTED WELLS
- DIRECT - USE APPLICATIONS
- HOT HEAT FLOW WELLS (Geothermal gradient greater than 100 degrees celsius per kilometer)
- WARM HEAT FLOW WELLS (Geothermal gradient less than 100 degrees celsius per kilometer)
- HOT SPRING (Water temperature greater than 37 degrees celsius)
- WARM SPRING (Water temperature less than 37 degrees celsius)
- HOT WELL (Water temperature greater than 37 degrees celsius)
- WARM WELL (Water temperature less than 37 degrees celsius)
- PALEO HOT SPRINGS (Relict hot spring deposit)
- SPRING COMPLEX

PROJECT LOCATION

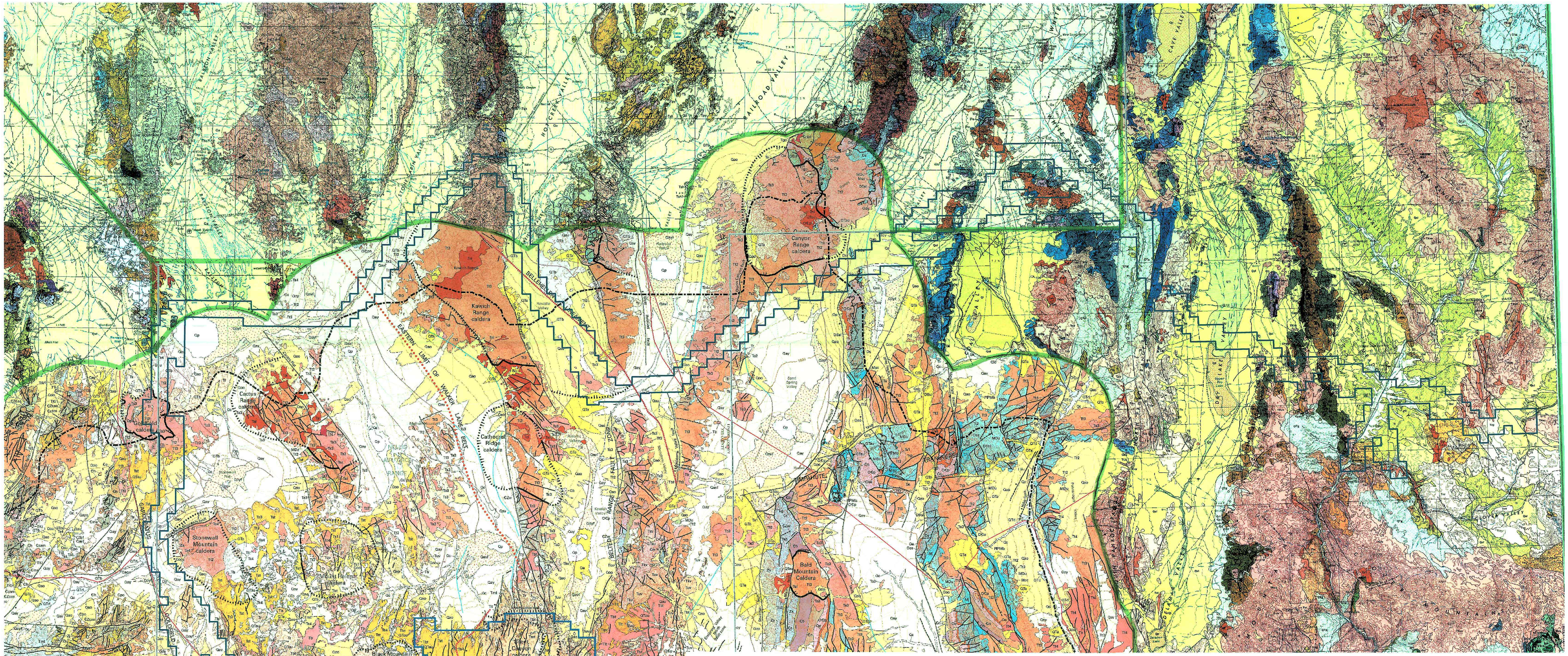
NOTES

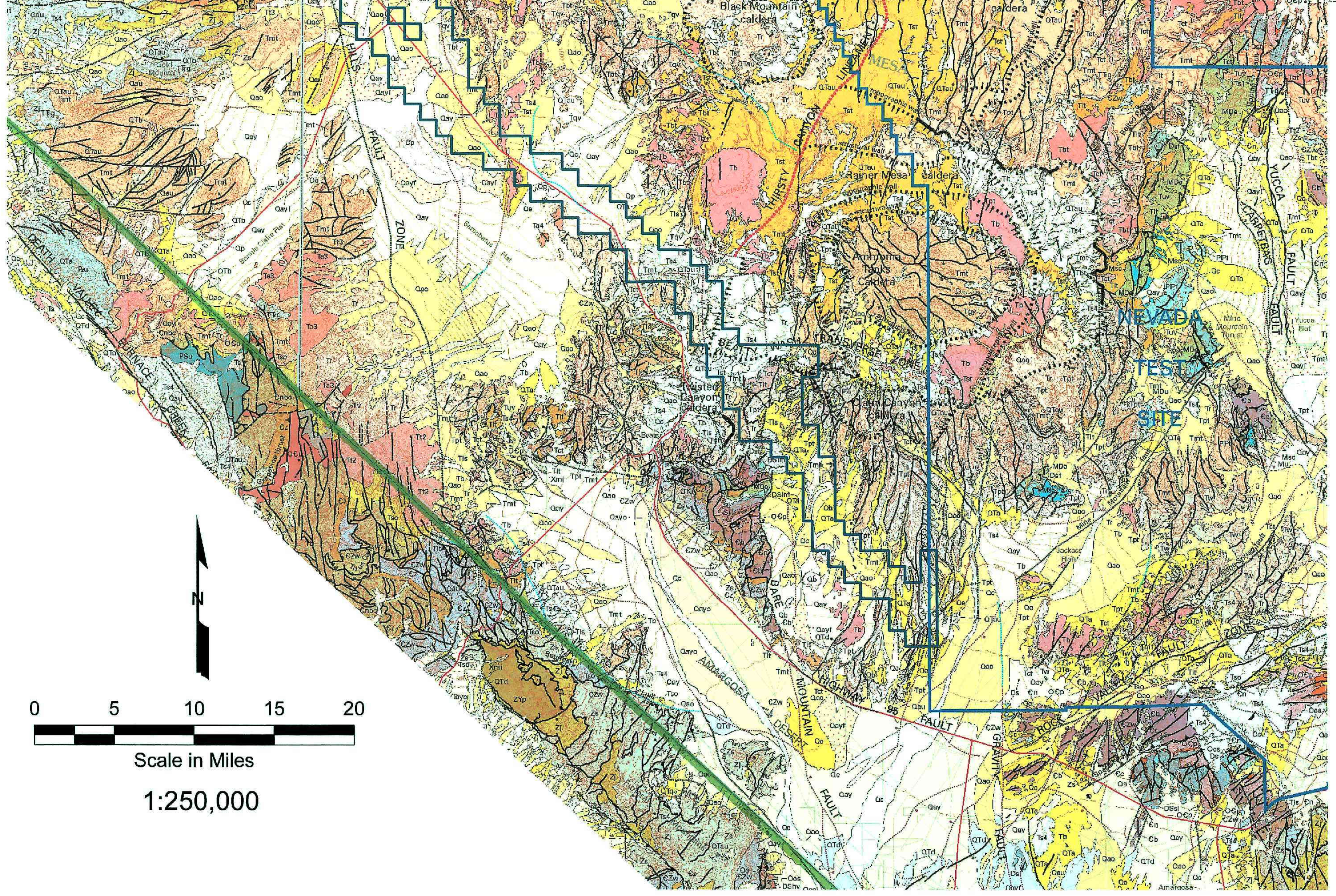
1. Land ownership data provided by the United States Department of the Interior Bureau of Land Management Nevada State Office Mapping Sciences, updated 2003.
2. Geothermal well type and spring complex data derived from Shevenell, L. and Garside, L.J., 2003: Nevada geothermal resources: Nevada Bureau of Mines and Geology, map 141, Scale 1:750,000.
3. Some data provided by the Department of Energy Office of Civilian Radioactive Waste Management, Yucca Mountain Site Characterization Office, March 1999.
4. GIS layers for topographic base, hot springs, paleo springs, geothermal well data and mineral and energy land status provided by Gnomon, Inc., Reno, Nevada (September 2004).
5. Shaded areas are artifacts from original topographic base map. Shaded areas originally indicated Forest Cover.
5. The study area includes lands in and near the proposed withdrawal and consists of those sections (excluding lands in the NTS and NTTR) listed in the notice for proposed withdrawal published in the Federal Register on 29 December 2003 (68 FR 74965).
6. "Lands Prospectively Valuable For Geothermal Resources" and "Known Geothermal Resource Areas (KGRA)" taken from Godwin, L.H., Johnson E., and Sun, S.S., 1977. Lands valuable for geothermal resources: United States Geological Survey Conservation Division, Western Region. Scale 1:500,00.
7. No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of the data for individual use or aggregate use with other data.

CALIENTE RAIL CORRIDOR, NEVADA

Mineral Potential Report

GEOTHERMAL POTENTIAL
PLATE 3





LEGEND

STUDY AREA

REFERENCES

1 Albers, J.P., and Stewart, J.H. 1972. *Geology and Mineral Deposits of Esmeralda County, Nevada.* Bulletin 78. Reno, Nevada: Nevada Bureau of Mines and Geology.

2 Cornwall, H.R. 1972. *Geology and Mineral Deposits of Southern Nye County, Nevada.* Bulletin 77. Reno, Nevada: Nevada Bureau of Mines and Geology.

3 Kleinhampl, F.J., and Ziony, J.I. 1985. *Geology and Mineral Deposits of Northern Nye County, Nevada* . Bulletin 99A. Reno, Nevada: Nevada Bureau of Mines and Geology.

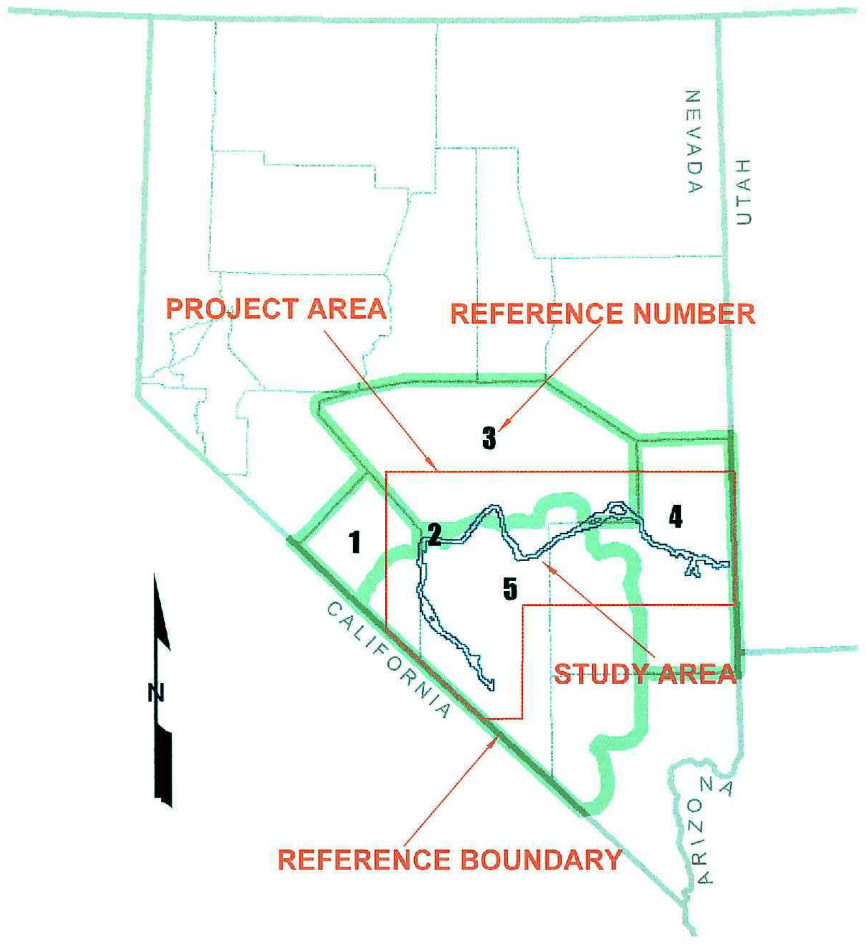
4 Tschanz, C.M., and Pampeyan, E.H. 1970. *Geology and Mineral Deposits of Lincoln County, Nevada* . Bulletin 73. Reno, Nevada: Nevada Bureau of Mines and Geology.

5 Workman, J.B., Menges, C.M., Page, W.R., Taylor, E.M., Ekren, E.B., Rowley, P.D., Dixon, G.L., Thompson, R.A., and Wright, L.A. 2002. *Geologic Map of the Death Valley Ground-water Model Area, Nevada and California.* Miscellaneous Field Studies Map MF-2381-A. Denver, Colorado: U.S. Geological Survey.

NOTE

1. See Plate 4, Sheet 2 For Explanation of Map Symbols.
2. The study area includes lands in and near the proposed withdrawal and consists of those sections (excluding lands in the NTS and NTTR) listed in the notice for proposed withdrawal published in the Federal Register on 29 December 2003 (68 FR 74965).
3. No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of the data for individual use or aggregate use with other data.

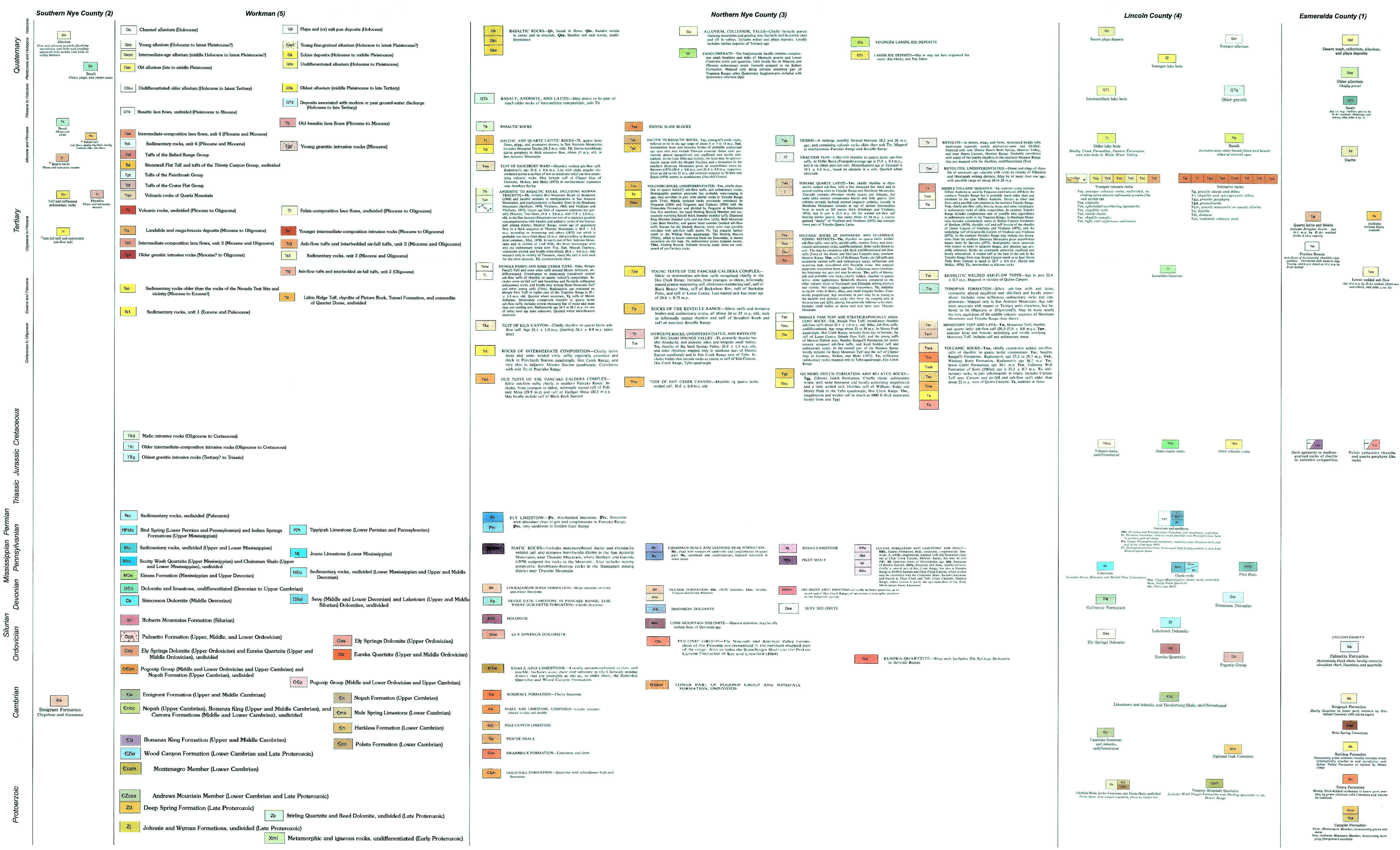
PROJECT LOCATION



CALIENTE RAIL CORRIDOR, NEVADA

Mineral Potential Report

GEOLOGIC MAP
PLATE 4 (Sheet 1 of 2)



GEOLOGIC MAP
PLATE 4 (Sheet 2 of 2)

APPENDIX A

LEGAL DESCRIPTION OF LANDS INVOLVED

LEGAL DESCRIPTION OF LANDS INVOLVED

Mount Diablo Meridian				
Township	**Range**	**Section**	**Quarter Section**	**Quarter-Quarter Section**
10S	46E	01		
10S	46E	02		
10S	46E	12		
10S	46E	13		
10S	47E	06	SW	
10S	47E	07		
10S	47E	08		
10S	47E	09	SW	
10S	47E	15	NW; SW; SE	SWNW; NESW; NWSW; SWSW; SESW; NWSE; SWSE; SESE
10S	47E	16		
10S	47E	17		
10S	47E	18		
10S	47E	21	NW; NE; SE	NENE; NWNE; SWNE; SENE; NENW; NWNW; SENW; NESE; NWSE; SWSE; SESE
10S	47E	22		
10S	47E	23	NW; SW	NWNW; SWNW; NESW; NWSW; SWSW; SESW;
10S	47E	26	NW; SW	NENW; NWNW; SWNW; SENW; NESW; NWSW; SWSW; SESW;
10S	47E	27		
10S	47E	28	NE	NENE;
10S	47E	34	NW; NE; SW; SE	NENE; NWNE; SWNE; SENE; NENW; NWNW; SENW; NESW; SESW; NESE; NWSE; SESE
10S	47E	35	NW; SW; SE	NENW; NWNW; SWNW; SENW; NESW; NWSW; SESW; SWSE;
11S	47E	01	SW	SWSW;
11S	47E	02		
11S	47E	03	NE; SE	SWNE; SENE; NESE; SESE
11S	47E	11		
11S	47E	12	NW; SW; SE	NWNW; SWNW; SENW; NESW; NWSW; SWSW; SESW; NWSE; SWSE; SESE
11S	47E	13		
11S	47E	14	NW; NE; SE	NENE; NWNE; SWNE; SENE; NENW; NESE;
11S	47E	24	NW; NE; SE	NENE; NWNE; SWNE; SENE; NENW; NESE; NWSE; SESE
11S	47E	25	NE	NENE; SENE
11S	48E	07	SW; SE	
11S	48E	08		
11S	48E	09		
11S	48E	10		
11S	48E	11		

LEGAL DESCRIPTION OF LANDS INVOLVED

Mount Diablo Meridian				
Township	**Range**	**Section**	**Quarter Section**	**Quarter-Quarter Section**
11S	48E	14		
11S	48E	15		
11S	48E	16		
11S	48E	17		
11S	48E	18		
11S	48E	19		
11S	48E	20		
11S	48E	21		
11S	48E	22		
11S	48E	27		
11S	48E	28		
11S	48E	29		
11S	48E	30		
11S	48E	31		
11S	48E	32		
11S	48E	33		
11S	48E	34		
12S	48E	02		
12S	48E	03		
12S	48E	04		
12S	48E	05		
12S	48E	06		
12S	48E	09	NE	
12S	48E	10		
12S	48E	11		
12S	48E	13	SW	
12S	48E	14		
12S	48E	15		
12S	48E	23		
12S	48E	24		
12S	48E	25		
12S	48E	26		
12S	48E	35	NE; SE	
12S	48E	36		
13S	48E	09		
13S	48E	16		
1N	43E	23	SW; SE	SESW; NESE; SWSE; SESE
1N	43E	24	NE; SW; SE	SWNE; SENE; NESW; NWSW; SWSW; SESW; NESE; NWSE; SWSE; SESE
1N	43E	25		
1N	43E	26		
1N	43E	27	NE; SE	SENE; NESE; SWSE; SESE
1N	43E	34		
1N	43E	35		
1N	43E	36		

LEGAL DESCRIPTION OF LANDS INVOLVED

Mount Diablo Meridian				
Township	**Range**	**Section**	**Quarter Section**	**Quarter-Quarter Section**
1N	44E	19		
1N	44E	20		
1N	44E	21		
1N	44E	22		
1N	44E	23	NW; SW; SE	SWNW; SENW; NESW; NWSW; SWSW; SESW; NESE; NWSE; SWSE; SESE
1N	44E	24	SW; SE	NESW; NWSW; SWSW; SESW; NESE; NWSE; SWSE; SESE
1N	44E	25		
1N	44E	26		
1N	44E	27	NW; NE	NENE; NWNE; SWNE; SENE; NENW; NWNW; SWNW; SENW;
1N	44E	28	NW; NE	NENE; NWNE; SWNE; SENE; NENW; NWNW; SWNW; SENW;
1N	44E	29	NW; NE	NENE; NWNE; SWNE; SENE; NENW; NWNW; SWNW; SENW;
1N	44E	30	NW; NE; SW	NENE; NWNE; SWNE; SENE; NENW; NWNW; SWNW; SENW; NESW; NWSW;
1N	45E	19	SW; SE	NWSW; SWSW; SESW; SWSE; SESE
1N	45E	20	SW; SE	SWSW; SESW; SWSE;
1N	45E	25	SW; SE	NESW; NWSW; SWSW; SESW; NESE; NWSE; SWSE; SESE
1N	45E	26	NW; SW; SE	SWNW; SENW; NESW; NWSW; SWSW; SESW; NESE; NWSE; SWSE; SESE
1N	45E	27		
1N	45E	28		
1N	45E	29		
1N	45E	30		
1N	45E	32	NW; NE	NENE; NWNE; NENW;
1N	45E	33	NW; NE	NENE; NWNE; SENE; NENW; NWNW;
1N	45E	34	NW; NE	NENE; NWNE; SWNE; SENE; NENW; NWNW; SWNW; SENW;
1N	45E	35		
1N	45E	36		
1N	46E	25	NE; SW; SE	SENE; NESW; NWSW; SWSW; SESW; NESE; NWSE; SWSE; SESE
1N	46E	26	SW; SE	NESW; NWSW; SWSW; SESW; NESE; NWSE; SWSE; SESE
1N	46E	27	SW; SE	NESW; NWSW; SWSW; SESW; NESE; NWSE; SWSE; SESE
1N	46E	28	SW; SE	NESW; NWSW; SWSW; SESW; NESE; NWSE; SWSE; SESE
1N	46E	29	SW; SE	SWSW; SESW; SWSE; SESE
1N	46E	30	SW; SE	SWSW; SESW; SWSE; SESE
1N	46E	31		
1N	46E	32		
1N	46E	33		

LEGAL DESCRIPTION OF LANDS INVOLVED

Mount Diablo Meridian				
Township	**Range**	**Section**	**Quarter Section**	**Quarter-Quarter Section**
1N	46E	34	NW; NE; SW; SE	NENE; NWNE; SWNE; SENE; NENW; NWNW; SWNW; SENW; NESW; NWSW; NESE; NWSE;
1N	46E	35		
1N	46E	36		
1N	47E	01	NW; NE; SW	NENE; NWNE; SWNE; NENW; NWNW; SWNW; SENW; NESW; NWSW; SWSW;
1N	47E	02		
1N	47E	03	SE	NESE; SESE
1N	47E	10		
1N	47E	11		
1N	47E	12	NW	NWNW;
1N	47E	14	NW	NENW; NWNW; SWNW;
1N	47E	15		
1N	47E	16	NE; SW; SE	NENE; SWNE; SENE; NESW; SWSW; SESW; NESE; NWSE; SWSE; SESE
1N	47E	20	NE; SW; SE	NENE; SWNE; SENE; NESW; SWSW; SESW; NESE; NWSE; SWSE; SESE
1N	47E	21		
1N	47E	22	NW; NE; SW	NWNE; NENW; NWNW; SWNW; SENW; NWSW;
1N	47E	28	NW; NE; SW	NWNE; NENW; NWNW; SWNW; SENW; NWSW;
1N	47E	29		
1N	47E	30		
1N	47E	31	NW; NE; SW	NENE; NWNE; SWNE; SENE; NENW; NWNW; SWNW; SENW; NWSW;
1N	47E	32	NW	NENW; NWNW;
1N	50E	01	NE; SE	NENE; NWNE; SWNE; SENE; NESE; SESE
1N	50E	12	NE	NENE; SENE;
1N	51E	05	NW; SW	NWNW; SWNW; NWSW; SWSW; SESW;
1N	51E	06		
1N	51E	07		
1N	51E	08		
1N	51E	16		
1N	51E	17		
1N	51E	18	NW; NE; SE	NENE; NWNE; SWNE; SENE; NENW; NWNW; SENW; NESE; NWSE; SWSE; SESE
1N	51E	19	NE	NENE; SENE;
1N	51E	20		
1N	51E	21		
1N	51E	22		
1N	51E	26		
1N	51E	27		

LEGAL DESCRIPTION OF LANDS INVOLVED

Mount Diablo Meridian				
Township	**Range**	**Section**	**Quarter Section**	**Quarter-Quarter Section**
1N	51E	28		
1N	51E	29	NW; NE; SE	NENE; NWNE; SWNE; SENE; NENW; NESE;
1N	51E	33	NW; NE; SE	NENE; NWNE; SWNE; SENE; NENW; NESE; SESE
1N	51E	34		
1N	51E	35		
1N	51E	36	NW; SW; SE	NWNW; SWNW; SENW; NESW; NWSW; NWSE; SWSE; SESE
1N	55E	13	SW; SE	SWSW; SESW; NESE; NWSE; SWSE; SESE
1N	55E	14	SE	SESE
1N	55E	21	SW; SE	SESW; NESE; SWSE; SESE
1N	55E	22	NE; SW; SE	SWNE; SENE; NESW; NWSW; SWSW; SESW; NESE; NWSE; SWSE; SESE
1N	55E	23		
1N	55E	24		
1N	55E	25	NW	NWNW;
1N	55E	26	NW; NE	NENE; NWNE; NENW; NWNW; SWNW; SENW;
1N	55E	27		
1N	55E	28		
1N	55E	29	NE; SW; SE	NENE; SWNE; SENE; NESW; NWSW; SWSW; SESW; NESE; NWSE; SWSE; SESE
1N	55E	30	SE	SWSE; SESE
1N	55E	31		
1N	55E	32		
1N	55E	33	NW; NE	NWNE; NENW; NWNW; SWNW;
1N	56E	01		
1N	56E	02	NE; SE	SENE; NESE; NWSE; SWSE; SESE
1N	56E	09	SW; SE	SESW; NESE; SWSE; SESE
1N	56E	10		
1N	56E	11		
1N	56E	12	NW; NE; SW	NENE; NWNE; SWNE; NENW; NWNW; SWNW; SENW; NESW; NWSW; SWSW; SESW;
1N	56E	13	NW	NWNW; SWNW;
1N	56E	14	NW; NE	NENE; NWNE; SWNE; SENE; NENW; NWNW; SWNW; SENW;
1N	56E	15		
1N	56E	16		
1N	56E	17		
1N	56E	18	NE; SW; SE	SWNE; SENE; NESW; NWSW; SWSW; SESW; NESE; NWSE; SWSE; SESE
1N	56E	19		
1N	56E	20	NW; NE	NENE; NWNE; SWNE; NENW; NWNW;

LEGAL DESCRIPTION OF LANDS INVOLVED

Mount Diablo Meridian				
Township	**Range**	**Section**	**Quarter Section**	**Quarter-Quarter Section**
				SWNW; SENW;
1N	56E	21	NW; NE	NWNE; NENW; NWNW;
1N	57E	03	NW	NWNW;
1N	57E	04	NW; NE	NENE; NWNE; NENW; NWNW;
1N	57E	05	NW; NE	NENE; NWNE; SWNE; SENE; NENW; NWNW; SWNW; SENW;
1N	57E	06		
1N	62E	01	NE; SE	
1N	62E	12	NE; SE	
1N	62E	13		
1N	63E	06		
1N	63E	07		
1N	63E	08		
1N	63E	17		
1N	63E	18		
1N	63E	19		
1N	63E	20		
1N	63E	21		
1N	63E	26		
1N	63E	27		
1N	63E	28		
1N	63E	29		
1N	63E	30		
1N	63E	32		
1N	63E	33		
1N	63E	34		
1N	63E	35		
1S	43E	01	NW; SW	SWNW; SENW; NESW; NWSW; SWSW;
1S	43E	02		
1S	43E	03		
1S	43E	04	NE; SE	NENE; SENE; NESE; SESE
1S	43E	09	NE; SE	NENE; SENE; NESE; SESE
1S	43E	10		
1S	43E	11		
1S	43E	12	NW; SW	NWNW; SWNW; NWSW; SWSW; SESW;
1S	43E	13		
1S	43E	14	NW; NE; SE	NENE; NWNE; SWNE; SENE; NENW; NWNW; SENW; NESE; NWSE; SWSE; SESE
1S	43E	15		
1S	43E	16	NE; SE	NENE; SENE; NESE; SWSE; SESE
1S	43E	21	NW; NE; SW; SE	NENE; NWNE; SWNE; SENE; NENW; SENW; NESW; NWSW; SWSW; SESW; NESE; NWSE; SWSE; SESE
1S	43E	22	NW; NE; SW	NWNE; SWNE; NENW; NWNW; SWNW;

LEGAL DESCRIPTION OF LANDS INVOLVED

Mount Diablo Meridian				
Township	Range	Section	Quarter Section	Quarter-Quarter Section
				SENW; NESW; NWSW; SWSW; SESW;
1S	43E	23	NE	NENE;
1S	43E	24		
1S	43E	25	NE; SE	NENE; NWNE; SWNE; SENE; NESE; SESE
1S	43E	27	NW; SW	NWNW; SWNW; SENW; NESW; NWSW; SWSW; SESW;
1S	43E	28	NW; NE; SW; SE	NENE; NWNE; SWNE; SENE; NENW; NWNW; SWNW; SENW; NESW; NWSW; SESW; NESE; NWSE; SWSE; SESE
1S	43E	33		
1S	43E	34	NW; SW	NENW; NWNW; SWNW; SENW; NWSW; SWSW;
1S	44E	18	SW	
1S	44E	19		
1S	44E	29	SW	
1S	44E	30		
1S	44E	31		
1S	44E	32		
1S	51.2E	06		
1S	51.2E	07		
1S	51.2E	08	SW	
1S	51.2E	17	NW; SW	
1S	51.2E	18		
1S	51.2E	19		
1S	51.2E	20		
1S	51.2E	28	SW	
1S	51.2E	29		
1S	51.2E	30		
1S	51.2E	31		
1S	51.2E	32		
1S	51.2E	33		
1S	51E	01		
1S	51E	02		
1S	51E	03		
1S	51E	11		
1S	51E	12		
1S	51E	13		
1S	51E	14	NE; SE	
1S	51E	24		
1S	51E	25	NE; SE	
1S	51E	36	NE; SE	
1S	52E	31		
1S	53E	25		
1S	53E	35	NE; SW; SE	NENE; SWNE; SENE; NESW; SWSW; SESW; NESE; NWSE; SWSE; SESE

Mount Diablo Meridian				
Township	**Range**	**Section**	**Quarter Section**	**Quarter-Quarter Section**
1S	53E	36		
1S	54E	01	NE; SW; SE	SENE; NESW; SWSW; SESW; NESE; NWSE; SWSE; SESE
1S	54E	10	SE	SESE
1S	54E	11	NE; SW; SE	NENE; SWNE; SENE; NESW; NWSW; SWSW; SESW; NESE; NWSE; SWSE; SESE
1S	54E	12		
1S	54E	13	NW; NE	NWNE; NENW; NWNW; SWNW;
1S	54E	14	NW; NE; SW; SE	NENE; NWNE; SWNE; SENE; NENW; NWNW; SWNW; SENW; NESW; NWSW; SWSW; SESW; NESE; NWSE; SWSE;
1S	54E	15		
1S	54E	16	SE	NESE; SWSE; SESE
1S	54E	20	SW; SE	SWSW; SESW; NESE; NWSE; SWSE; SESE
1S	54E	21		
1S	54E	22		
1S	54E	23	NW	NENW; NWNW;
1S	54E	28	NW; NE; SW	NENE; NWNE; SWNE; NENW; NWNW; SWNW; SENW; NESW; NWSW; SWSW;
1S	54E	29		
1S	54E	30		
1S	54E	31	NW; NE	NENE; NWNE; NENW; NWNW; SWNW;
1S	54E	32	NW	NWNW;
1S	55E	05	NW	NWNW; SWNW;
1S	55E	06		
1S	55E	07	NW; NE; SW	NWNE; NENW; NWNW; SWNW; SENW; NWSW;
1S	63E	01		
1S	63E	02		
1S	63E	11		
1S	63E	12		
1S	63E	13		
1S	64E	07	NW; SW; SE	SWNW; NESW; NWSW; SWSW; SESW; SWSE;
1S	64E	15	SW	SWSW; SESW;
1S	64E	16	SW; SE	NESW; NWSW; SWSW; SESW; NWSE; SWSE; SESE
1S	64E	17		
1S	64E	18		
1S	64E	19	NW; NE	NENE; NWNE; SWNE; SENE; NENW;
1S	64E	20	NW; NE; SW; SE	NENE; NWNE; SWNE; SENE; NENW; NWNW; SWNW; SENW; NESW; NESE; NWSE;
1S	64E	21	NW; NE; SW; SE	NENE; NWNE; SWNE; SENE; NENW; NWNW; SWNW; SENW; NESW; NWSW;

LEGAL DESCRIPTION OF LANDS INVOLVED

Mount Diablo Meridian				
Township	**Range**	**Section**	**Quarter Section**	**Quarter-Quarter Section**
				SESW; NESE; NWSE; SWSE; SESE
1S	64E	22		
1S	64E	23		
1S	64E	24	NW; SW; SE	SWNW; SENW; NESW; NWSW; SWSW; SESW; NESE; NWSE; SWSE; SESE
1S	64E	25		
1S	64E	26	NW; NE	NENE; NWNE; SWNE; SENE; NENW; NWNW; SENW;
1S	64E	27	NW; NE	NENE; NWNE; NENW;
1S	65E	19	SW; SE	NESW; NWSW; SWSW; SESW; SWSE; SESE
1S	65E	20	SW	SWSW; SESW;
1S	65E	27	NW; SW; SE	SWNW; NESW; NWSW; SWSW; SESW; SWSE;
1S	65E	28		
1S	65E	29		
1S	65E	30		
1S	65E	32	NW; NE	NENE; NWNE; NENW; NWNW;
1S	65E	33	NW; NE; SE	NENE; NWNE; SWNE; SENE; NENW; NWNW; SWNW; SENW; NESE; NWSE; SESE
1S	65E	34		
1S	65E	35	NW; SW; SE	SWNW; NESW; NWSW; SWSW; SESW; SWSE;
2N	47E	25	NE; SW; SE	NENE; SWNE; SENE; SESW; NESE; NWSE; SWSE; SESE
2N	47E	35	NE; SE	SENE; NESE; NWSE; SWSE; SESE
2N	47E	36		
2N	48E	02	NW	NENW; NWNW; SWNW;
2N	48E	03		
2N	48E	04	NE; SW; SE	NENE; SWNE; SENE; SESW; NESE; NWSE; SWSE; SESE
2N	48E	08	NE; SE	SENE; NESE; SWSE; SESE
2N	48E	09		
2N	48E	10	NW; NE; SW	NWNE; NENW; NWNW; SWNW; SENW; NWSW; SWSW;
2N	48E	16	NW; NE; SW	NENE; NWNE; SWNE; NENW; NWNW; SWNW; SENW; NESW; NWSW; SWSW; SESW;
2N	48E	17		
2N	48E	18	SE	SESE
2N	48E	19		
2N	48E	20		
2N	48E	21	NW	NWNW;
2N	48E	29	NW	NENW; NWNW; SWNW;
2N	48E	30		
2N	48E	31	NW; NE; SW	NWNE; NENW; NWNW; SWNW; SENW;

LEGAL DESCRIPTION OF LANDS INVOLVED

Mount Diablo Meridian				
Township	Range	Section	Quarter Section	Quarter-Quarter Section
				NWSW;
2N	50E	01		
2N	50E	02	NE; SE	NENE; NWNE; SWNE; SENE; NESE; NWSE; SWSE; SESE
2N	50E	11	NE; SE	NENE; NWNE; SENE; NESE; SESE
2N	50E	12		
2N	50E	13		
2N	50E	14	NE	NENE; SENE;
2N	50E	24		
2N	50E	25		
2N	50E	36	NW; NE; SE	NENE; NWNE; SWNE; SENE; NENW; NESE; NWSE; SWSE; SESE
2N	51E	18	NW; SW	SWNW; NWSW; SWSW;
2N	51E	19	NW; SW	NWNW; SWNW; NWSW; SWSW; SESW;
2N	51E	30	NW; SW; SE	NENW; NWNW; SWNW; SENW; NESW; NWSW; SWSW; SESW; NWSE; SWSE;
2N	51E	31		
2N	56E	36		
2N	57E	13		
2N	57E	14	SE	SESE
2N	57E	22	SW; SE	SWSW; SESW; NESE; NWSE; SWSE; SESE
2N	57E	23		
2N	57E	24		
2N	57E	25		
2N	57E	26		
2N	57E	27		
2N	57E	28		
2N	57E	29	SW; SE	SESW; NESE; SWSE; SESE
2N	57E	31		
2N	57E	32		
2N	57E	33		
2N	57E	34		
2N	57E	35		
2N	57E	36	NW; NE; SW	NENE; NWNE; SWNE; SENE; NENW; NWNW; SWNW; SENW; NESW; NWSW;
2N	58E	02	NW	NENW; NWNW; SWNW;
2N	58E	03		
2N	58E	04		
2N	58E	05	SW; SE	SESW; NESE; SWSE; SESE
2N	58E	07	NE; SW; SE	SENE; NESW; SWSW; SESW; NESE; NWSE; SWSE; SESE
2N	58E	08		
2N	58E	09	NW; NE; SW	NENE; NWNE; SWNE; NENW; NWNW; SWNW; SENW; NESW; NWSW; SWSW;

LEGAL DESCRIPTION OF LANDS INVOLVED

Mount Diablo Meridian				
Township	**Range**	**Section**	**Quarter Section**	**Quarter-Quarter Section**
2N	58E	10	NW	NWNW;
2N	58E	13	SW; SE	SESW; NESE; SWSE; SESE
2N	58E	17	NW; NE; SW	NENE; NWNE; NENW; NWNW; SWNW; SENW; NWSW;
2N	58E	18		
2N	58E	19	NW	NENW; NWNW; SWNW;
2N	58E	20	SW; SE	SESW; SWSE; SESE
2N	58E	21	SW; SE	SWSW; SESW; NESE; NWSE; SWSE; SESE
2N	58E	22	NE; SW; SE	SWNE; SENE; NESW; NWSW; SWSW; SESW; NESE; NWSE; SWSE; SESE
2N	58E	23		
2N	58E	24		
2N	58E	25	NW; NE	NWNE; NENW; NWNW;
2N	58E	26	NW; NE	NENE; NWNE; SWNE; SENE; NENW; NWNW; SWNW; SENW;
2N	58E	27	NW; NE; SW; SE	NENE; NWNE; SWNE; SENE; NENW; NWNW; SWNW; SENW; NESW; NWSW; NWSE;
2N	58E	28		
2N	58E	29		
2N	58E	30		
2N	58E	31	NW; NE	NENE; NWNE; NENW; NWNW; SWNW; SENW;
2N	58E	32	NW; NE	NWNE; NENW; NWNW;
2N	59E	02	NW; NE	NENE; NWNE; NENW; NWNW; SWNW; SENW;
2N	59E	03		
2N	59E	04		
2N	59E	08	NE; SW; SE	NENE; SWNE; SENE; NESW; SWSW; SESW; NESE; NWSE; SWSE; SESE
2N	59E	09		
2N	59E	10	NW	NWNW; SWNW;
2N	59E	16	NW; NE; SW	NWNE; NENW; NWNW; SWNW; SENW; NWSW;
2N	59E	17		
2N	59E	18		
2N	59E	19		
2N	59E	20	NW	NENW; NWNW; SWNW;
2N	60E	01		
2N	61E	06		
2N	62E	01		
2N	62E	02		
2N	62E	03		
2N	62E	04		
2N	62E	05	NE; NW	
2N	62E	10		

LEGAL DESCRIPTION OF LANDS INVOLVED

Mount Diablo Meridian				
Township	**Range**	**Section**	**Quarter Section**	**Quarter-Quarter Section**
2N	62E	11		
2N	62E	12		
2N	62E	13		
2N	62E	14		
2N	62E	15	NE	
2N	62E	24		
2N	62E	25		
2N	62E	36	NE; SE	
2N	63E	07	NW; SW; SE	NENW; NWNW; SWNW; SENW; NESW; NWSW; SWSW; SESW; NWSE; SWSE;
2N	63E	18		
2N	63E	19		
2N	63E	30		
2N	63E	31		
2S	43E	03	NW; SW	NENW; NWNW; SWNW; SENW; NESW; NWSW; SWSW; SESW;
2S	43E	04		
2S	43E	09	NW; NE; SW; SE	NENE; NWNE; SWNE; SENE; NENW; NWNW; SWNW; SENW; NESW; SESW; NESE; NWSE; SWSE; SESE
2S	43E	10	NW; SW	NENW; NWNW; SWNW; SENW; NESW; NWSW; SWSW; SESW;
2S	43E	15	NW; SW	NENW; NWNW; SWNW; SENW; NESW; NWSW; SWSW; SESW;
2S	43E	16		
2S	43E	20	SE	NESE;
2S	43E	21		
2S	43E	22	NW; SW	NENW; NWNW; SWNW; SENW; NWSW; SWSW;
2S	43E	27	SW	SWSW;
2S	43E	28	NW; NE; SE	SENE; SWNW; NESE;
2S	43E	29	NE; SE	SENE; NESE; SESE
2S	43E	32	NE	NENE; SENE;
2S	43E	33		
2S	43E	34	NW; SW; SE	NWNW; NWSW; SWSW; SESW; SWSE; SESE
2S	43E	35	NW; SW; SE	SWNW; SENW; NESW; SWSW; SESW; NWSE;
2S	43E	36	SW	SWSW;
2S	44E	04		
2S	44E	05		
2S	44E	06	NE	
2S	44E	08		
2S	44E	09		
2S	44E	16		
2S	44E	17		

LEGAL DESCRIPTION OF LANDS INVOLVED

Mount Diablo Meridian				
Township	**Range**	**Section**	**Quarter Section**	**Quarter-Quarter Section**
2S	44E	20	NE	
2S	44E	21		
2S	44E	22	NW; SW	
2S	44E	27	NW; SW	
2S	44E	28		
2S	44E	32	SE	
2S	44E	33		
2S	44E	34	NW	
2S	51.2E	04		
2S	51.2E	05		
2S	51.2E	06		
2S	51.2E	07		
2S	51.2E	08		
2S	51.2E	09		
2S	51.2E	16		
2S	51.2E	17		
2S	51.2E	18	NE	
2S	51.2E	20	NE	
2S	51.2E	21		
2S	52E	06		
2S	52E	07		
2S	52E	08		
2S	52E	11		
2S	52E	12		
2S	52E	13		
2S	52E	14		
2S	52E	15		
2S	52E	16		
2S	52E	17		
2S	52E	18		
2S	52E	19		
2S	52E	20		
2S	52E	21		
2S	52E	22	NW; NE	
2S	52E	23	NW; NE	
2S	53E	01	NW	NENW; NWNW; SWNW;
2S	53E	02		
2S	53E	03	NE; SW; SE	NENE; SWNE; SENE; NESW; SWSW; SESW; NESE; NWSE; SWSE; SESE
2S	53E	07	SW; SE	SWSW; SESW; NESE; SWSE; SESE
2S	53E	08	SW; SE	NESW; NWSW; SWSW; SESW; NESE; NWSE; SWSE; SESE
2S	53E	09		
2S	53E	10		
2S	53E	11	NW; NE; SW	NWNE; NENW; NWNW; SWNW; SENW;

Mount Diablo Meridian				
Township	Range	Section	Quarter Section	Quarter-Quarter Section
				NWSW;
2S	53E	15	NW; NE	NWNE; NENW; NWNW; SWNW; SENW;
2S	53E	16	NW; NE; SW	NENE; NWNE; SWNE; SENE; NENW; NWNW; SWNW; SENW; NESW; NWSW;
2S	53E	17		
2S	53E	18		
2S	65E	01	NW; SW	SWNW; NWSW; SWSW; SESW;
2S	65E	02		
2S	65E	03	NW; NE; SE	NENE; NWNE; SWNE; SENE; NENW; NWNW; SENW; NESE; NWSE;
2S	65E	11		
2S	65E	12		
2S	65E	13	NW; NE; SE	NENE; NWNE; SWNE; SENE; NENW; NWNW; SWNW; SENW; NESE; NWSE;
2S	65E	14	NE	NENE; NWNE;
2S	66E	01		
2S	66E	02		
2S	66E	03		
2S	66E	04		
2S	66E	05		
2S	66E	07		
2S	66E	08		
2S	66E	09		
2S	66E	10		
2S	66E	11		
2S	66E	12		
2S	66E	13		
2S	66E	14		
2S	66E	16		
2S	66E	17		
2S	66E	18		
2S	66E	20		
2S	66E	24		
2S	67E	07	SW; SE	SWSW; SESE
2S	67E	08	SW; SE	NESW; NWSW; SWSW; SESW; NWSE; SWSE; SESE
2S	67E	09	SW	SWSW;
2S	67E	14	SW; SE	NWSW; SWSW; SESW; SWSE;
2S	67E	15	NW; SW; SE	SWNW; NESW; NWSW; SWSW; SESW; NESE; NWSE; SWSE; SESE
2S	67E	16		
2S	67E	17		
2S	67E	18		
2S	67E	19		
2S	67E	20		
2S	67E	21	NW; NE; SE	NENE; NWNE; SWNE; SENE; NENW;

LEGAL DESCRIPTION OF LANDS INVOLVED

Mount Diablo Meridian				
Township	Range	Section	Quarter Section	Quarter-Quarter Section
				NWNW; SENW; NESE;
2S	67E	22		
2S	67E	23		
2S	67E	24	NW; SW; SE	NWNW; SWNW; SENW; NESW; NWSW; SWSW; SESW; NWSE; SWSE; SESE
2S	67E	25		
2S	67E	26	NW; NE; SE	NENE; NWNE; SWNE; SENE; NENW; NESE; SESE
2S	67E	29	NW	NENW; NWNW;
2S	67E	30	NW; NE	NENE; NWNE; NENW;
2S	67E	35	NE; SW; SE	NENE; NWNE; SWNE; SENE; NESW; SESW; NESE; NWSE; SWSE; SESE
2S	67E	36		
2S	68E	19	SW	SWSW; SESW;
2S	68E	23	SW; SE	SWSW; SESW; SWSE; SESE
2S	68E	25		
2S	68E	26		
2S	68E	27		
2S	68E	28		
2S	68E	29		
2S	68E	30		
2S	68E	31	NW; NE	NENE; NWNE; NENW;
2S	68E	32	NW; NE	NENE; NWNE; NENW; NWNW;
2S	68E	33	NW; NE	NENE; NWNE; SWNE; SENE; NENW; NWNW;
2S	68E	34	NW; NE	NENE; NWNE; NENW; NWNW; SWNW; SENW;
2S	68E	35	NW; NE	NENE; NWNE; NENW; NWNW;
2S	68E	36		
2S	69E	30	SW	NWSW; SWSW;
2S	69E	31	NW; SW; SE	NWNW; SWNW; NWSW; SWSW; NESE; SWSE; SESE
2S	69E	32	SW; SE	NESW; NWSW; SWSW; SESW; NESE; NWSE; SWSE; SESE
2S	69E	33	SW; SE	NESW; NWSW; SWSW; SESW; SWSE;
3.2N	50E	33		
3.2N	50E	34		
3N	48E	13	NE; SW; SE	SENE; SESW; NESE; NWSE; SWSE; SESE
3N	48E	23	NE; SE	SENE; NESE; SWSE; SESE
3N	48E	24		
3N	48E	25	NW; NE; SW	NENE; NWNE; SWNE; NENW; NWNW; SWNW; SENW; NESW; NWSW; SWSW; SESW;
3N	48E	26		
3N	48E	27	SE	SESE
3N	48E	34		

LEGAL DESCRIPTION OF LANDS INVOLVED

Mount Diablo Meridian				
Township	Range	Section	Quarter Section	Quarter-Quarter Section
3N	48E	35		
3N	48E	36	NW	NWNW;
3N	49E	02	NW	NENW; NWNW; SWNW;
3N	49E	03		
3N	49E	04		
3N	49E	05	SE	SWSE; SESE
3N	49E	07	SW; SE	SESW; NESE; SWSE; SESE
3N	49E	08		
3N	49E	09		
3N	49E	10	NW	NWNW;
3N	49E	16	NW	NWNW;
3N	49E	17	NW; NE; SW	NENE; NWNE; SWNE; NENW; NWNW; SWNW; SENW; NESW; NWSW; SWSW;
3N	49E	18		
3N	49E	19	NW; NE; SW	NENE; NWNE; SWNE; NENW; NWNW; SWNW; SENW; NWSW; SWSW;
3N	50E	02		
3N	50E	03		
3N	50E	04		
3N	50E	10		
3N	50E	11		
3N	50E	14		
3N	50E	15	NE; SE	
3N	50E	22	NE	
3N	50E	23		
3N	50E	24		
3N	50E	25		
3N	50E	26		
3N	50E	35		
3N	50E	36		
3N	58E	24	SE	SWSE; SESE
3N	58E	25		
3N	58E	26	NE; SW; SE	SENE; NESW; SWSW; SESW; NESE; NWSE; SWSE; SESE
3N	58E	33	SE	SWSE; SESE
3N	58E	34	NW; NE; SW; SE	NENE; NWNE; SWNE; SENE; SENW; NESW; NWSW; SWSW; SESW; NESE; NWSE; SWSE; SESE
3N	58E	35	NW; NE; SW; SE	NENE; NWNE; SWNE; SENE; NENW; NWNW; SWNW; SENW; NESW; NWSW; SWSW; SESW; NESE; NWSE; SWSE;
3N	58E	36	NW; NE; SW	NENE; NWNE; NENW; NWNW; SWNW; SENW; NWSW;
3N	59E	12	NE; SW; SE	NENE; SWNE; SENE; SESW; NESE; NWSE; SWSE; SESE
3N	59E	13		

Mount Diablo Meridian				
Township	**Range**	**Section**	**Quarter Section**	**Quarter-Quarter Section**
3N	59E	14	SE	NESE; SWSE; SESE
3N	59E	19	NE; SW; SE	SWNE; SENE; NESW; NWSW; SWSW; SESW; NESE; NWSE; SWSE; SESE
3N	59E	20	NW; NE; SW; SE	NWNE; SWNE; SENE; NENW; NWNW; SWNW; SENW; NESW; NWSW; SWSW; SESW; NESE; NWSE; SWSE; SESE
3N	59E	21	NW; SW; SE	SWNW; SENW; NESW; NWSW; SWSW; SESW; NESE; NWSE; SWSE; SESE
3N	59E	22	NE; SW; SE	SENE; NESW; NWSW; SWSW; SESW; NESE; NWSE; SWSE; SESE
3N	59E	23		
3N	59E	24		
3N	59E	25		
3N	59E	26		
3N	59E	27		
3N	59E	28		
3N	59E	29	NW; NE	NENE; NWNE; SWNE; SENE; NENW; NWNW; SWNW; SENW;
3N	59E	30		
3N	59E	33	SE	NESE; SWSE; SESE
3N	59E	34		
3N	59E	35		
3N	59E	36		
3N	60E	05		
3N	60E	06		
3N	60E	07		
3N	60E	08		
3N	60E	18		
3N	60E	19		
3N	60E	20		
3N	60E	21		
3N	60E	22		
3N	60E	25		
3N	60E	26		
3N	60E	27		
3N	60E	28		
3N	60E	29		
3N	60E	30		
3N	60E	31		
3N	60E	34		
3N	60E	35		
3N	60E	36		
3N	61E	02		
3N	61E	03		
3N	61E	04		
3N	61E	09		

LEGAL DESCRIPTION OF LANDS INVOLVED

Mount Diablo Meridian				
Township	**Range**	**Section**	**Quarter Section**	**Quarter-Quarter Section**
3N	61E	10		
3N	61E	11		
3N	61E	12		
3N	61E	13		
3N	61E	14		
3N	61E	15		
3N	61E	22	SE	
3N	61E	23		
3N	61E	24		
3N	61E	25		
3N	61E	26		
3N	61E	27		
3N	61E	28		
3N	61E	29		
3N	61E	30		
3N	61E	31		
3N	61E	32		
3N	61E	33		
3N	61E	34		
3N	61E	35		
3N	61E	36		
3N	62E	18	NW; SW; SE	SWNW; NESW; NWSW; SWSW; SESW; SWSE;
3N	62E	19		
3N	62E	20	NW; SW; SE	SWNW; NESW; NWSW; SWSW; SESW; NWSE; SWSE; SESE
3N	62E	28	NW; SW; SE	NWNW; SWNW; SENW; NESW; NWSW; SWSW; SESW; NWSE; SWSE; SESE
3N	62E	29		
3N	62E	30		
3N	62E	31		
3N	62E	32		
3N	62E	33		
3N	62E	34		
3N	62E	35	SW	SWSW
3S	43E	01		
3S	43E	02		
3S	43E	03		
3S	43E	04	NE	NENE;
3S	43E	10		
3S	43E	11		
3S	43E	12		
3S	43E	13	NW; NE; SW	NWNE; SWNE; NENW; NWNW; SWNW; SENW; NESW; NWSW; SWSW; SESW;
3S	43E	14		

LEGAL DESCRIPTION OF LANDS INVOLVED

Mount Diablo Meridian				
Township	Range	Section	Quarter Section	Quarter-Quarter Section
3S	43E	15	NE; SE	NENE; NWNE; SWNE; SENE; NESE; NWSE; SWSE; SESE
3S	43E	22	NE; SE	NENE; NWNE; SWNE; SENE; NESE; NWSE; SESE
3S	43E	23		
3S	43E	24		
3S	43E	25		
3S	43E	26		
3S	43E	27	NE; SE	NENE; SENE; NESE; SESE
3S	43E	34	NE; SE	NENE; SWNE; SENE; NESE; NWSE; SWSE; SESE
3S	43E	35		
3S	43E	36		
3S	44E	04		
3S	44E	05	SE	
3S	44E	07	SE	
3S	44E	08		
3S	44E	09		
3S	44E	17		
3S	44E	18		
3S	44E	19		
3S	44E	20		
3S	44E	30		
3S	44E	31		
3S	67E	01		
3S	67E	02		
3S	67E	03	SE	NESE; SWSE; SESE
3S	67E	10		
3S	67E	11		
3S	67E	12		
3S	67E	13		
3S	67E	14		
3S	67E	15		
3S	67E	16	NE; SE	SENE; NESE; SWSE; SESE
3S	67E	20	SE	SESE
3S	67E	21		
3S	67E	22		
3S	67E	23	NE; SE	NENE; NWNE; SENE; NESE; SESE
3S	67E	24		
3S	67E	25		
3S	67E	27	NW	NENW; NWNW; SWNW;
3S	67E	28		
3S	67E	29	NE; SW; SE	NENE; SWNE; SENE; NESW; SWSW; SESW; NESE; NWSE; SWSE; SESE
3S	67E	32		

LEGAL DESCRIPTION OF LANDS INVOLVED

Mount Diablo Meridian				
Township	**Range**	**Section**	**Quarter Section**	**Quarter-Quarter Section**
3S	67E	33	NW; SW	NENW; NWNW; SWNW; NWSW; SWSW;
3S	67E	35	NE; SE	NENE; SENE; NESE; SWSE; SESE
3S	67E	36		
3S	68E	01		
3S	68E	12	NE	NENE;
3S	68E	19	SW	NWSW; SWSW;
3S	68E	30	NW; SW	NENW; NWNW; SWNW; SENW; NESW; NWSW; SWSW;
3S	68E	31	NW	NWNW; SWNW;
3S	69E	03	NW; SW; SE	SWNW; NESW; NWSW; SWSW; SESW; NWSE; SWSE;
3S	69E	04		
3S	69E	05		
3S	69E	06		
3S	69E	07		
3S	69E	08	NW; SW	NENW; NWNW; SWNW; NWSW;
3S	69E	09	NW; NE; SE	NENE; NWNE; SWNE; SENE; NENW; NWNW; NESE; SESE
3S	69E	10		
3S	69E	11	SW	NWSW; SWSW;
3S	69E	13	SW; SE	NWSW; SWSW; SESW; SWSE; SESE
3S	69E	14		
3S	69E	15		
3S	69E	22	NE	NENE;
3S	69E	23		
3S	69E	24		
3S	69E	25	NW; NE	NWNE; NENW;
3S	70E	08	SW; SE	SESW; SWSE; SESE
3S	70E	09	SW; SE	SWSW; SESW; SWSE; SESE
3S	70E	10	SW; SE	SWSW; SESW; SWSE; SESE
3S	70E	11	SW; SE	SWSW; SESE
3S	70E	12	SW; SE	SWSW; SESW; SWSE;
3S	70E	13		
3S	70E	14		
3S	70E	15		
3S	70E	16		
3S	70E	17		
3S	70E	18		
3S	70E	19		
3S	70E	20	NW; NE	NWNE; NENW; NWNW; SWNW;
3S	70E	22	NE	NENE;
3S	70E	23	NW; NE	NENE; NWNE; NENW; NWNW;
3S	70E	24	NW	NWNW;
4N	49.2E	25		

LEGAL DESCRIPTION OF LANDS INVOLVED

Mount Diablo Meridian				
Township	Range	Section	Quarter Section	Quarter-Quarter Section
4N	49.2E	26		
4N	49.2E	27		
4N	49.2E	34		
4N	49.2E	35		
4N	49.2E	36		
4N	49E	24	SE	SESE
4N	49E	25		
4N	49E	26	NE; SW; SE	SENE; NESW; SWSW; SESW; NESE; NWSE; SWSE; SESE
4N	49E	33	SE	SESE
4N	49E	34		
4N	49E	35		
4N	49E	36	NW; NE; SW	NENE; NWNE; SWNE; NENW; NWNW; SWNW; SENW; NWSW;
4N	50E	30		
4N	50E	31		
4N	50E	31	NE; SE	NWNE; SWNE; NESE; NWSE;
4N	50E	32	SW	SWSW
4N	60E	20	SE	SWSE; SESE
4N	60E	21	SW; SE	NESW; NWSW; SWSW; SESW; NESE; NWSE; SWSE; SESE
4N	60E	22		
4N	60E	23		
4N	60E	24		
4N	60E	25	NW; NE; SE	NENE; NWNE; SWNE; SENE; NENW; NWNW; SWNW; SENW; NESE;
4N	60E	26	NW; NE	NENE; NWNE; SWNE; SENE; NENW; NWNW; SWNW; SENW;
4N	60E	27	NW; NE; SW	NENE; NWNE; SWNE; SENE; NENW; NWNW; SWNW; SENW; NESW; NWSW;
4N	60E	28		
4N	60E	29		
4N	60E	30	SE	SESE
4N	60E	31	NE; SW; SE	NENE; SWNE; SENE; NESW; SESW; NESE; NWSE; SWSE; SESE
4N	60E	32		
4N	60E	33	NW	NWNW; SWNW;
4N	61E	19	NW; SW; SE	SWNW; NESW; NWSW; SWSW; SESW; NESE; NWSE; SWSE; SESE
4N	61E	20	SW	SWSW; SESW;
4N	61E	28	SW	NWSW; SWSW; SESW;
4N	61E	29	NW; NE; SW; SE	NWNE; SWNE; SENE; NENW; NWNW; SWNW; SENW; NESW; NWSW; SWSW; SESW; NESE; NWSE; SWSE; SESE
4N	61E	30		
4N	61E	31	NE	NENE;
4N	61E	32		

Mount Diablo Meridian				
Township	Range	Section	Quarter Section	Quarter-Quarter Section
4N	61E	33		
4N	61E	34	SW; SE	NWSW; SWSW; SESW; SWSE;
4S	43E	01	NW; NE; SW	NWNE; SWNE; NENW; NWNW; SWNW; SENW; NESW; NWSW; SWSW; SESW;
4S	43E	02		
4S	43E	03		
4S	43E	10		
4S	43E	11		
4S	43E	12	NW; SW	NENW; NWNW; SWNW; NWSW;
4S	43E	14		
4S	43E	15		
4S	43E	22		
4S	43E	23	NW; SW	NENW; NWNW; SWNW; SENW; NESW; NWSW; SWSW;
4S	43E	26	NW	NWNW;
4S	43E	27		
4S	43E	28	NE; SE	NENE; SENE; NESE; NWSE; SWSE; SESE
4S	43E	33		
4S	43E	34	NW; NE; SW	NWNE; SWNE; NENW; NWNW; SWNW; SENW; NESW; NWSW; SWSW; SESW;
4S	67E	01		
4S	67E	02	NE; SE	NENE; NWNE; SWNE; SENE; NESE; SESE
4S	67E	04	NW; SW	NWNW; SWSW;
4S	67E	05		
4S	67E	06	NE; SE	NENE; SENE; NESE; SESE
4S	67E	07	NE	NENE; SENE;
4S	67E	08		
4S	67E	09	NW; SW	NENW; NWNW; SWNW; SENW; NWSW;
4S	67E	12	NW; NE; SE	NENE; NWNE; SWNE; SENE; NENW; NWNW; SENW; NESE; NWSE;
4S	68E	06	NW; SW; SE	SWNW; SENW; NESW; NWSW; SWSW; SESW; SWSE;
4S	68E	07		
4S	68E	08	NW; SW	NWNW; SWNW; NESW; NWSW; SWSW; SESW;
4S	68E	17	NW	NWNW;
4S	68E	18	NW; NE	NENE; NWNE; NENW;
5S	43E	03	NW	
5S	43E	04		
5S	43E	05		
5S	43E	05		
5S	43E	08		
5S	43E	09		
5S	43E	15		

LEGAL DESCRIPTION OF LANDS INVOLVED

Mount Diablo Meridian				
Township	Range	Section	Quarter Section	Quarter-Quarter Section
5S	43E	16		
5S	43E	17		
5S	43E	21		
5S	43E	22		
5S	43E	27		
5S	43E	28		
5S	43E	33		
5S	43E	34		
5S	43E	35		
6S	43E	01		
6S	43E	02		
6S	43E	03		
6S	43E	10		
6S	43E	11		
6S	43E	12		
6S	43E	13		
6S	43E	14		
6S	43E	15		
6S	43E	23		
6S	43E	24		
6S	43E	25		
6S	43E	26		
6S	43E	27	NE; SE	
6S	43E	34	NE; SE	
6S	43E	35		
6S	43E	36		
6S	44E	06		
6S	44E	07		
6S	44E	08		
6S	44E	15		
6S	44E	16		
6S	44E	17		
6S	44E	18		
6S	44E	20		
6S	44E	21		
6S	44E	22		
6S	44E	27		
6S	44E	28		
6S	44E	31		
6S	44E	33		
6S	44E	34		
7S	43E	01		
7S	43E	02		
7S	43E	03	NE; SE	

LEGAL DESCRIPTION OF LANDS INVOLVED

Mount Diablo Meridian				
Township	**Range**	**Section**	**Quarter Section**	**Quarter-Quarter Section**
7S	43E	11		
7S	43E	12		
7S	43E	13		
7S	43E	14		
7S	43E	24		
7S	43E	25		
7S	44E	03		
7S	44E	04		
7S	44E	05		
7S	44E	06		
7S	44E	07		
7S	44E	08		
7S	44E	09		
7S	44E	10		
7S	44E	14		
7S	44E	15		
7S	44E	16		
7S	44E	17		
7S	44E	18		
7S	44E	19		
7S	44E	21	NW; NE; SE	NENE; NWNE; SWNE; SENE; NENW; NESE;
7S	44E	22		
7S	44E	23		
7S	44E	25		
7S	44E	26		
7S	44E	27		
7S	44E	29	NW; SW; SE	NWNW; SWNW; SENW; NESW; NWSW; SWSW; SESW; NWSE; SWSE;
7S	44E	30		
7S	44E	31		
7S	44E	32		
7S	44E	33	NW; SW; SE	SWNW; NESW; NWSW; SWSW; SESW; SWSE;
7S	44E	35		
7S	44E	36	NW; SW; SE	NENW; NWNW; SWNW; SENW; NESW; NWSW; SWSW; SESW; NWSE; SWSE;
8S	44E	01		
8S	44E	02	NE; SE	NENE; NWNE; SWNE; SENE; NESE;
8S	44E	03	SW	NWSW; SWSW; SESW;
8S	44E	04		
8S	44E	05	NW; NE; SE	NENE; NWNE; SWNE; SENE; NENW; SENW; NESE; NWSE; SESE
8S	44E	09		
8S	44E	10		
8S	44E	11	SW	SWSW;

LEGAL DESCRIPTION OF LANDS INVOLVED

Mount Diablo Meridian				
Township	**Range**	**Section**	**Quarter Section**	**Quarter-Quarter Section**
8S	44E	12		
8S	44E	13		
8S	44E	14		
8S	44E	15		
8S	44E	16		
8S	44E	22	NE	
8S	44E	23		
8S	44E	24		
8S	44E	25		
8S	44E	26		
8S	44E	36		
8S	45E	06		
8S	45E	07		
8S	45E	18		
8S	45E	19		
8S	45E	20		
8S	45E	28		
8S	45E	29		
8S	45E	30		
8S	45E	31		
8S	45E	32		
8S	45E	33		
9S	45E	02		
9S	45E	03		
9S	45E	04		
9S	45E	05		
9S	45E	06		
9S	45E	08		
9S	45E	09		
9S	45E	10		
9S	45E	11		
9S	45E	12		
9S	45E	13		
9S	45E	14		
9S	45E	24		
9S	46E	07		
9S	46E	17		
9S	46E	18		
9S	46E	19		
9S	46E	20		
9S	46E	21		
9S	46E	22	SW	
9S	46E	26		
9S	46E	27		

LEGAL DESCRIPTION OF LANDS INVOLVED

Mount Diablo Meridian				
Township	Range	Section	Quarter Section	Quarter-Quarter Section
9S	46E	28		
9S	46E	29		
9S	46E	33		
9S	46E	34		
9S	46E	35		
9S	46E	36		

APPENDIX B

MINING CLAIM AND MINERAL LEASING RECORDATION REPORT

MINING CLAIM AND MINERAL LEASING RECORDATION REPORT

Summary Sheet

Mining Claims, Mineral Leases, and Mineral Materials Sales Sites

Information gathered for all sections listed for withdrawal on the Federal Register

Casetype	Description	Number of Records	Date Collected	Page
384101	Lode Mining Claims	906	May 6, 2005	B-2
384201	Placer Mining Claims	8	May 6, 2005	B-29
384401	Millsite Mining Claims	1	May 6, 2005	B-30
380913	Surface Management Notice of Intent (NOI)	6	June 6, 2005	B-31
380910	Surface Management Plan of Operation (POO)	2	June 6, 2005	B-33
311121	Oil & Gas Leases Non-Competitive	2	June 6, 2005	B-35
321000	Geothermal Leases Non-Competitive	0	June 6, 2005	B-36
360413	Mineral Materials Disposal Sites (saleable free use permits)	1	June 6, 2005	B-37
361113	Mineral Materials Negotiated	1	June 6, 2005	B-38
362113	Mineral Materials Free Use Permit Government	0	June 6, 2005	B-39
282102	Mineral Material Site (Sec 107)	0	August 16, 2005	B-40
282104	Mineral Material Site (Sec 317)	2	August 16, 2005	B-41
282106	Mineral Material Site (Sec 17)	19	August 16, 2005	B-42

Note:
No warranty is made as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

Lode Mining Claims

Serial Number	MTRS	Aliquot Part	Mining Claim Name	Customer Name	Mining Claim Lead Case File	Casetype	Case Disposition	Mining Claim Location Date	Last Assessed
NMC56637	21 0030S 0430E 004	SW	CYCLE FRAC	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	9/5/1946	2005
NMC56635	21 0030S 0430E 004	SW SE	ALVARADO FRAC	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	9/4/1948	2005
NMC56638	21 0030S 0430E 004	SW	MOOSE FRAC	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	5/16/1949	2005
NMC96714	21 0030N 0490E 003	NE SE	TERRY	CLIFFORD ALBINA	NMC96714	384101	ACTIVE	9/25/1950	2005
NMC96714	21 0030N 0490E 003	NE SE	TERRY	CLIFFORD JOSEPH	NMC96714	384101	ACTIVE	9/25/1950	2005
NMC96714	21 0030N 0490E 003	NE SE	TERRY	CLIFFORD ROY E	NMC96714	384101	ACTIVE	9/25/1950	2005
NMC96714	21 0030N 0490E 003	NE SE	TERRY	CLIFFORD WILLIAM ROY	NMC96714	384101	ACTIVE	9/25/1950	2005
NMC96715	21 0030N 0490E 003	NE SE	TERRY # 1	CLIFFORD ALBINA	NMC96714	384101	ACTIVE	9/25/1950	2005
NMC96715	21 0030N 0490E 003	NE SE	TERRY # 1	CLIFFORD JOSEPH	NMC96714	384101	ACTIVE	9/25/1950	2005
NMC96715	21 0030N 0490E 003	NE SE	TERRY # 1	CLIFFORD ROY E	NMC96714	384101	ACTIVE	9/25/1950	2005
NMC96715	21 0030N 0490E 003	NE SE	TERRY # 1	CLIFFORD WILLIAM ROY	NMC96714	384101	ACTIVE	9/25/1950	2005
NMC96716	21 0030N 0490E 003	NE SE	COUGAR	CLIFFORD ALBINA	NMC96714	384101	ACTIVE	9/25/1950	2005
NMC96716	21 0030N 0490E 003	NE SE	COUGAR	CLIFFORD JOSEPH	NMC96714	384101	ACTIVE	9/25/1950	2005
NMC96716	21 0030N 0490E 003	NE SE	COUGAR	CLIFFORD ROY E	NMC96714	384101	ACTIVE	9/25/1950	2005
NMC96716	21 0030N 0490E 003	NE SE	COUGAR	CLIFFORD WILLIAM ROY	NMC96714	384101	ACTIVE	9/25/1950	2005
NMC96717	21 0030N 0490E 003	NE NW SW SE	COUGAR # 1	CLIFFORD ALBINA	NMC96714	384101	ACTIVE	9/25/1950	2005
NMC96717	21 0030N 0490E 003	NE NW SW SE	COUGAR # 1	CLIFFORD JOSEPH	NMC96714	384101	ACTIVE	10/1/1950	2005
NMC96717	21 0030N 0490E 003	NE NW SW SE	COUGAR # 1	CLIFFORD ROY E	NMC96714	384101	ACTIVE	10/1/1950	2005
NMC96717	21 0030N 0490E 003	NE NW SW SE	COUGAR # 1	CLIFFORD WILLIAM ROY	NMC96714	384101	ACTIVE	10/1/1950	2005
NMC56630	21 0030S 0430E 010	NE	NEW DEAL # 1	PACIFIC GOLD CORP	NMC96714	384101	ACTIVE	10/1/1950	2005
NMC56631	21 0030S 0430E 010	NE	NEW DEAL # 2	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	10/1/1950	2005
NMC56629	21 0030S 0430E 011	NW	NEW DEAL	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	10/1/1950	2005
NMC56630	21 0030S 0430E 011	NW	NEW DEAL # 1	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	10/1/1950	2005
NMC56631	21 0030S 0430E 011	NW	NEW DEAL # 2	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	10/1/1950	2005
NMC56632	21 0030S 0430E 011	NW SW	NEW DEAL # 4	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	10/1/1950	2005
NMC56411	21 0030S 0430E 003	NW SW	FEDERAL GRANT	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	10/1/1950	2005
NMC56641	21 0030S 0430E 003	NW	OYSTER (3891)	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	9/21/1951	2005
NMC56643	21 0030S 0430E 003	NW SW	BRILLIANT (3891)	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	9/21/1951	2005
NMC56641	21 0030S 0430E 004	NE	OYSTER (3891)	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	9/21/1951	2005
NMC56643	21 0030S 0430E 004	NE SE	BRILLIANT (3891)	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	9/21/1951	2005
NMC56633	21 0020S 0430E 033	NE SE	BERLIN EXT	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	9/21/1951	2005
NMC56695	21 0020S 0430E 033	SE	INVESTOR # 2	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	5/20/1952	2005
NMC56696	21 0020S 0430E 033	SE	INVESTOR # 3	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	5/20/1952	2005
NMC56697	21 0020S 0430E 033	SE	INVESTOR # 5	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	5/20/1952	2005
NMC56698	21 0020S 0430E 033	SW	INVESTOR # 8	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	5/20/1952	2005
NMC56695	21 0020S 0430E 034	SW	INVESTOR # 2	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	5/20/1952	2005
NMC56696	21 0020S 0430E 034	SW	INVESTOR # 3	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	5/20/1952	2005
NMC56696	21 0030S 0430E 004	NE	INVESTOR # 3	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	5/20/1952	2005
NMC56699	21 0030S 0430E 003	NW SW	POINTER	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	5/20/1952	2005
NMC56700	21 0030S 0430E 003	SW	POINTER # 2	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	5/21/1952	2005
NMC56706	21 0030S 0430E 003	NW	CAKE # 4 EXT	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	5/21/1952	2005
NMC56707	21 0030S 0430E 003	NW	CAKE # 3 EXT	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	5/21/1952	2005
NMC56699	21 0030S 0430E 004	SE	POINTER	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	5/21/1952	2005
NMC56700	21 0030S 0430E 004	SE	POINTER # 2	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	5/21/1952	2005

NMC56701	21 0030S 0430E 004	SE	POINTER EXT	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	5/21/1952	2005
NMC56412	21 0030S 0430E 003	NW SW	FEDERAL GRANT # 1	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	5/22/1952	2005
NMC56509	21 0030S 0430E 002	SW	KEY # 2	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/8/1952	2005
NMC56510	21 0030S 0430E 002	SW	KEY # 3	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/8/1952	2005
NMC56511	21 0030S 0430E 002	SW	KEY # 4	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/8/1952	2005
NMC56512	21 0030S 0430E 002	SW	KEY # 5	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/8/1952	2005
NMC56514	21 0030S 0430E 002	SW	OWL # 1	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/8/1952	2005
NMC56516	21 0030S 0430E 002	SW	OWL # 3	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/8/1952	2005
NMC56517	21 0030S 0430E 002	SW	OWL # 4	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/8/1952	2005
NMC56518	21 0030S 0430E 002	SW	OWL # 5	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/8/1952	2005
NMC56519	21 0030S 0430E 002	SW SE	OWL # 6	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/8/1952	2005
NMC56523	21 0030S 0430E 002	SW	EVE # 4	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/8/1952	2005
NMC56509	21 0030S 0430E 003	SE	KEY # 2	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/8/1952	2005
NMC56510	21 0030S 0430E 003	SE	KEY # 3	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/8/1952	2005
NMC56511	21 0030S 0430E 003	SE	KEY # 4	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/8/1952	2005
NMC56512	21 0030S 0430E 003	SE	KEY # 5	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/8/1952	2005
NMC56520	21 0030S 0430E 003	SE	EVE # 1	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/8/1952	2005
NMC56521	21 0030S 0430E 003	SE	EVE # 2	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/8/1952	2005
NMC56522	21 0030S 0430E 003	SE	EVE # 3	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/8/1952	2005
NMC56523	21 0030S 0430E 003	SE	EVE # 4	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/8/1952	2005
NMC56524	21 0030S 0430E 003	SE	EVE # 5	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/8/1952	2005
NMC56526	21 0030S 0430E 003	SW SE	EVE EXT	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/8/1952	2005
NMC56527	21 0030S 0430E 003	SW SE	EVE # 1 EXT	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/8/1952	2005
NMC56528	21 0030S 0430E 003	SW SE	EVE # 2 EXT	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/8/1952	2005
NMC56529	21 0030S 0430E 003	SW SE	EVE # 3 EXT	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/8/1952	2005
NMC56534	21 0030S 0430E 003	NE NW SW SE	BELL # 1	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/8/1952	2005
NMC56536	21 0030S 0430E 003	NE NW	BELL # 3	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/8/1952	2005
NMC56537	21 0030S 0430E 003	NE SW SE	BIG BELL	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/8/1952	2005
NMC56538	21 0030S 0430E 003	NE NW SW SE	BELL EXT	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/8/1952	2005
NMC56508	21 0030S 0430E 010	NE	KEY # 1	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/8/1952	2005
NMC56509	21 0030S 0430E 010	NE	KEY # 2	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/8/1952	2005
NMC56510	21 0030S 0430E 010	NE	KEY # 3	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/8/1952	2005
NMC56524	21 0030S 0430E 010	NE NW	EVE # 5	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/8/1952	2005
NMC56525	21 0030S 0430E 010	NE NW	EVE # 6	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/8/1952	2005
NMC56529	21 0030S 0430E 010	NW	EVE # 3 EXT	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/8/1952	2005
NMC56508	21 0030S 0430E 011	NW	KEY # 1	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/8/1952	2005
NMC56509	21 0030S 0430E 011	NW	KEY # 2	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/8/1952	2005
NMC56510	21 0030S 0430E 011	NW	KEY # 3	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/8/1952	2005
NMC56514	21 0030S 0430E 011	NE NW	OWL # 1	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/8/1952	2005
NMC56515	21 0030S 0430E 011	NW	OWL # 2	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/8/1952	2005
NMC56516	21 0030S 0430E 011	NW	OWL # 3	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/8/1952	2005
NMC56519	21 0030S 0430E 011	NE NW	OWL # 6	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/8/1952	2005
NMC81837	21 0030S 0430E 011	NE NW	BIRD	HENDRICKSON ROBIN E	NMC81817	384101	ACTIVE	11/3/1952	2005
NMC81837	21 0030S 0430E 011	NE NW	BIRD	PACIFIC GOLD URANIUM	NMC81817	384101	ACTIVE	11/3/1952	2005
NMC56535	21 0030S 0430E 003	NE	BELL # 2	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/8/1953	2005
NMC56487	21 0030S 0430E 001	SW	LILY # 7	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	2/24/1954	2005
NMC56488	21 0030S 0430E 001	SW	LILY # 8	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	2/24/1954	2005
NMC56489	21 0030S 0430E 001	SW	LILY # 9	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	2/24/1954	2005
NMC56495	21 0030S 0430E 001	SW	LILY # 16	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	2/24/1954	2005
NMC56496	21 0030S 0430E 001	SW SE	LILY # 17	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	2/24/1954	2005

NMC56481	21 0030S 0430E 002	SE	LILY # 1	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	2/24/1954	2005
NMC56487	21 0030S 0430E 002	SE	LILY # 7	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	2/24/1954	2005
NMC56488	21 0030S 0430E 002	SE	LILY # 8	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	2/24/1954	2005
NMC56499	21 0030S 0430E 002	SE	LILY # 20	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	2/24/1954	2005
NMC56513	21 0030S 0430E 002	SW SE	WING	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	2/24/1954	2005
NMC56481	21 0030S 0430E 011	NE	LILY # 1	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	2/24/1954	2005
NMC56482	21 0030S 0430E 011	NE	LILY # 2	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	2/24/1954	2005
NMC56485	21 0030S 0430E 011	NE	LILY # 5	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	2/24/1954	2005
NMC56486	21 0030S 0430E 011	NE	LILY # 6	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	2/24/1954	2005
NMC56487	21 0030S 0430E 011	NE	LILY # 7	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	2/24/1954	2005
NMC56497	21 0030S 0430E 011	NE	LILY # 18	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	2/24/1954	2005
NMC56498	21 0030S 0430E 011	NE	LILY # 19	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	2/24/1954	2005
NMC56499	21 0030S 0430E 011	NE	LILY # 20	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	2/24/1954	2005
NMC56482	21 0030S 0430E 012	NW	LILY # 2	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	2/24/1954	2005
NMC56483	21 0030S 0430E 012	NE NW	LILY # 3	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	2/24/1954	2005
NMC56484	21 0030S 0430E 012	NW	LILY # 4	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	2/24/1954	2005
NMC56485	21 0030S 0430E 012	NW	LILY # 5	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	2/24/1954	2005
NMC56486	21 0030S 0430E 012	NW	LILY # 6	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	2/24/1954	2005
NMC56487	21 0030S 0430E 012	NW	LILY # 7	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	2/24/1954	2005
NMC56490	21 0030S 0430E 012	NE NW	LILY # 10	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	2/24/1954	2005
NMC56491	21 0030S 0430E 012	NE NW SE	LILY # 11	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	2/24/1954	2005
NMC56492	21 0030S 0430E 012	NE NW	LILY # 12	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	2/24/1954	2005
NMC56493	21 0030S 0430E 012	NE	LILY # 14	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	2/24/1954	2005
NMC56494	21 0030S 0430E 012	NE NW	LILY # 15	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	2/24/1954	2005
NMC56495	21 0030S 0430E 012	NE NW	LILY # 16	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	2/24/1954	2005
NMC56496	21 0030S 0430E 012	NE NW	LILY # 17	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	2/24/1954	2005
NMC56403	21 0020S 0430E 033	NE	NAVAJO # 1	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	4/7/1954	2005
NMC56404	21 0020S 0430E 033	NE SE	NAVAJO # 2	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	4/7/1954	2005
NMC56403	21 0020S 0430E 034	NW	NAVAJO # 1	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	4/7/1954	2005
NMC56410	21 0030S 0430E 003	NW	DAVENPORT # 2	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	4/7/1954	2005
NMC56409	21 0030S 0430E 004	NE SE	DAVENPORT # 1	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	4/7/1954	2005
NMC56410	21 0030S 0430E 004	NE	DAVENPORT # 2	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	4/7/1954	2005
NMC56599	21 0030S 0430E 004	NW SW	ST PATRICK	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	4/7/1954	2005
NMC56600	21 0030S 0430E 004	NW SW	ST PATRICK # 1	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	4/7/1954	2005
NMC56601	21 0030S 0430E 004	SW	ST PATRICK # 2	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	4/7/1954	2005
NMC56639	21 0030S 0430E 004	NW SW	DUFFY	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	4/7/1954	2005
NMC56642	21 0030S 0430E 004	NE SE	MAUD S #3891	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	4/7/1954	2005
NMC56428	21 0030S 0430E 001	SE	LILY # 21	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	5/24/1954	2005
NMC56431	21 0030S 0430E 001	SW SE	LILY # 24	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	5/24/1954	2005
NMC56434	21 0030S 0430E 001	SW	LILY # 27	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	5/24/1954	2005
NMC56435	21 0030S 0430E 001	SW	LILY # 28	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	5/24/1954	2005
NMC56421	21 0030S 0430E 002	SW	BOB # 10	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	5/24/1954	2005
NMC56434	21 0030S 0430E 002	SE	LILY # 27	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	5/24/1954	2005
NMC56435	21 0030S 0430E 002	SE	LILY # 28	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	5/24/1954	2005
NMC56428	21 0030S 0430E 012	NE	LILY # 21	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	5/24/1954	2005
NMC56469	21 0020S 0430E 028	SW	BIG DYKE # 1	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	7/25/1955	2005
NMC56469	21 0020S 0430E 033	NW	BIG DYKE # 1	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	7/25/1955	2005
NMC56470	21 0020S 0430E 033	NE NW	BIG DYKE # 2	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	7/25/1955	2005
NMC56471	21 0020S 0430E 033	NE NW	BIG DYKE # 3	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	7/25/1955	2005
NMC56472	21 0020S 0430E 033	NE NW	BIG DYKE # 4	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	7/25/1955	2005

WIP-21-1-20102-035 FinalAB.xls, 384101

NMC56473	21 0020S 0430E 033	NE NW	BIG DYKE # 5	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	7/25/1955	2005
NMC56474	21 0020S 0430E 033	SE	INVESTOR	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	7/25/1955	2005
NMC56475	21 0020S 0430E 033	SW SE	INVESTOR # 1	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	7/25/1955	2005
NMC56476	21 0020S 0430E 033	SW SE	INVESTOR # 4	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	7/25/1955	2005
NMC56477	21 0020S 0430E 033	SW SE	INVESTOR # 6	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	7/25/1955	2005
NMC56478	21 0020S 0430E 033	NW SW SE	INVESTOR # 7	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	7/25/1955	2005
NMC56464	21 0030S 0430E 003	SW	LV #116	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	7/25/1955	2005
NMC56465	21 0030S 0430E 003	SW	PIUTE # 2	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	7/25/1955	2005
NMC56464	21 0030S 0430E 004	SE	LV #116	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	7/25/1955	2005
NMC56467	21 0030S 0430E 004	NE	OYSTER EXT	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	7/25/1955	2005
NMC56468	21 0030S 0430E 004	NE NW	TOM BOY EXT	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	7/25/1955	2005
NMC56474	21 0030S 0430E 004	NE NW	INVESTOR	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	7/25/1955	2005
NMC56475	21 0030S 0430E 004	NW	INVESTOR # 1	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	7/25/1955	2005
NMC56465	21 0030S 0430E 010	NW	PIUTE # 2	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	7/25/1955	2005
NMC56466	21 0030S 0430E 010	SW	PIUTE # 3	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	7/25/1955	2005
NMC56627	21 0020S 0430E 032	NE SE	MONO	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/12/1955	2005
NMC56628	21 0020S 0430E 032	NE SE	MONO # 1	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/12/1955	2005
NMC56645	21 0030S 0430E 004	SE	CAIRO EXT	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/18/1955	2005
NMC56634	21 0030S 0430E 004	NW	WINDSOR EXT	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/22/1955	2005
NMC56636	21 0030S 0430E 004	NE SE	INDEPENDENCE EXT	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/22/1955	2005
NMC56644	21 0030S 0430E 004	SW SE	CAIRO # 1	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	9/22/1955	2005
NMC56592	21 0020S 0430E 032	SE	RFC	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	10/7/1955	2005
NMC56593	21 0030S 0430E 004	NW	RFC # 1	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	10/7/1955	2005
NMC56594	21 0030S 0430E 004	NW SW	RFC # 2	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	10/7/1955	2005
NMC56708	21 0030S 0430E 010	NE	RAT # 1	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	7/22/1957	2005
NMC56709	21 0030S 0430E 010	NE	RAT # 2	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	7/22/1957	2005
NMC56711	21 0030S 0430E 010	NE	RAT # 4	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	7/22/1957	2005
NMC56708	21 0030S 0430E 011	NW	RAT # 1	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	7/22/1957	2005
NMC56709	21 0030S 0430E 011	NW	RAT # 2	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	7/22/1957	2005
NMC56710	21 0030S 0430E 011	NE NW	RAT # 3	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	7/22/1957	2005
NMC56712	21 0030S 0430E 011	NW SW	RAT # 5	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	7/22/1957	2005
NMC56713	21 0030S 0430E 011	NW	RAT # 6	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	7/22/1957	2005
NMC56714	21 0030S 0430E 011	NE NW	RAT # 7	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	7/22/1957	2005
NMC94171	21 0040S 0430E 033	SW	SNOW WHITE # 4	BULLER DORA S	NMC94168	384101	ACTIVE	12/11/1957	2005
NMC94171	21 0040S 0430E 033	SW	SNOW WHITE # 4	BULLER ESTHER	NMC94168	384101	ACTIVE	12/11/1957	2005
NMC94171	21 0040S 0430E 033	SW	SNOW WHITE # 4	BULLER HARRY	NMC94168	384101	ACTIVE	12/11/1957	2005
NMC94171	21 0040S 0430E 033	SW	SNOW WHITE # 4	BULLER WESLEY	NMC94168	384101	ACTIVE	12/11/1957	2005
NMC94171	21 0040S 0430E 033	SW	SNOW WHITE # 4	FELDKAMP I W	NMC94168	384101	ACTIVE	12/11/1957	2005
NMC94171	21 0040S 0430E 033	SW	SNOW WHITE # 4	FELDKAMP PAMELA J	NMC94168	384101	ACTIVE	12/11/1957	2005
NMC94171	21 0040S 0430E 033	SW	SNOW WHITE # 4	NV W SILICA CORP	NMC94168	384101	ACTIVE	12/11/1957	2005
NMC94172	21 0040S 0430E 033	SW	SNOW WHITE # 5	BULLER DORA S	NMC94168	384101	ACTIVE	12/11/1957	2005
NMC94172	21 0040S 0430E 033	SW	SNOW WHITE # 5	BULLER ESTHER	NMC94168	384101	ACTIVE	12/11/1957	2005
NMC94172	21 0040S 0430E 033	SW	SNOW WHITE # 5	BULLER HARRY	NMC94168	384101	ACTIVE	12/11/1957	2005
NMC94172	21 0040S 0430E 033	SW	SNOW WHITE # 5	BULLER WESLEY	NMC94168	384101	ACTIVE	12/11/1957	2005
NMC94172	21 0040S 0430E 033	SW	SNOW WHITE # 5	FELDKAMP I W	NMC94168	384101	ACTIVE	12/11/1957	2005
NMC94172	21 0040S 0430E 033	SW	SNOW WHITE # 5	FELDKAMP PAMELA J	NMC94168	384101	ACTIVE	12/11/1957	2005
NMC94172	21 0040S 0430E 033	SW	SNOW WHITE # 5	NV W SILICA CORP	NMC94168	384101	ACTIVE	12/11/1957	2005
NMC94173	21 0040S 0430E 033	SW	SNOW WHITE # 6	BULLER DORA S	NMC94168	384101	ACTIVE	12/11/1957	2005
NMC94173	21 0040S 0430E 033	SW	SNOW WHITE # 6	BULLER ESTHER	NMC94168	384101	ACTIVE	12/11/1957	2005
NMC94173	21 0040S 0430E 033	SW	SNOW WHITE # 6	BULLER HARRY	NMC94168	384101	ACTIVE	12/11/1957	2005

NMC94173	21 0040S 0430E 033	SW	SNOW WHITE # 6	BULLER WESLEY	NMC94168	384101	ACTIVE	12/11/1957	2005
NMC94173	21 0040S 0430E 033	SW	SNOW WHITE # 6	FELDKAMP I W	NMC94168	384101	ACTIVE	12/11/1957	2005
NMC94173	21 0040S 0430E 033	SW	SNOW WHITE # 6	FELDKAMP PAMELA J	NMC94168	384101	ACTIVE	12/11/1957	2005
NMC94173	21 0040S 0430E 033	SW	SNOW WHITE # 6	NV W SILICA CORP	NMC94168	384101	ACTIVE	12/11/1957	2005
NMC94168	21 0050S 0430E 004	NW	SNOW WHITE # 1	BULLER DORA S	NMC94168	384101	ACTIVE	1/31/1958	2005
NMC94168	21 0050S 0430E 004	NW	SNOW WHITE # 1	BULLER ESTHER	NMC94168	384101	ACTIVE	1/31/1958	2005
NMC94168	21 0050S 0430E 004	NW	SNOW WHITE # 1	BULLER HARRY	NMC94168	384101	ACTIVE	1/31/1958	2005
NMC94168	21 0050S 0430E 004	NW	SNOW WHITE # 1	BULLER WESLEY	NMC94168	384101	ACTIVE	1/31/1958	2005
NMC94168	21 0050S 0430E 004	NW	SNOW WHITE # 1	FELDKAMP I W	NMC94168	384101	ACTIVE	1/31/1958	2005
NMC94168	21 0050S 0430E 004	NW	SNOW WHITE # 1	FELDKAMP PAMELA J	NMC94168	384101	ACTIVE	1/31/1958	2005
NMC94168	21 0050S 0430E 004	NW	SNOW WHITE # 1	NV W SILICA CORP	NMC94168	384101	ACTIVE	1/31/1958	2005
NMC94168	21 0050S 0430E 005	NE	SNOW WHITE # 1	BULLER DORA S	NMC94168	384101	ACTIVE	1/31/1958	2005
NMC94168	21 0050S 0430E 005	NE	SNOW WHITE # 1	BULLER ESTHER	NMC94168	384101	ACTIVE	1/31/1958	2005
NMC94168	21 0050S 0430E 005	NE	SNOW WHITE # 1	BULLER HARRY	NMC94168	384101	ACTIVE	1/31/1958	2005
NMC94168	21 0050S 0430E 005	NE	SNOW WHITE # 1	BULLER WESLEY	NMC94168	384101	ACTIVE	1/31/1958	2005
NMC94168	21 0050S 0430E 005	NE	SNOW WHITE # 1	FELDKAMP I W	NMC94168	384101	ACTIVE	1/31/1958	2005
NMC94168	21 0050S 0430E 005	NE	SNOW WHITE # 1	FELDKAMP PAMELA J	NMC94168	384101	ACTIVE	1/31/1958	2005
NMC94168	21 0050S 0430E 005	NE	SNOW WHITE # 1	NV W SILICA CORP	NMC94168	384101	ACTIVE	1/31/1958	2005
NMC94169	21 0050S 0430E 005	NW SW	SNOW WHITE # 2	BULLER DORA S	NMC94168	384101	ACTIVE	1/31/1958	2005
NMC94169	21 0050S 0430E 005	NW SW	SNOW WHITE # 2	BULLER ESTHER	NMC94168	384101	ACTIVE	1/31/1958	2005
NMC94169	21 0050S 0430E 005	NW SW	SNOW WHITE # 2	BULLER HARRY	NMC94168	384101	ACTIVE	1/31/1958	2005
NMC94169	21 0050S 0430E 005	NW SW	SNOW WHITE # 2	BULLER WESLEY	NMC94168	384101	ACTIVE	1/31/1958	2005
NMC94169	21 0050S 0430E 005	NW SW	SNOW WHITE # 2	FELDKAMP I W	NMC94168	384101	ACTIVE	1/31/1958	2005
NMC94169	21 0050S 0430E 005	NW SW	SNOW WHITE # 2	FELDKAMP PAMELA J	NMC94168	384101	ACTIVE	1/31/1958	2005
NMC94169	21 0050S 0430E 005	NW SW	SNOW WHITE # 2	NV W SILICA CORP	NMC94168	384101	ACTIVE	1/31/1958	2005
NMC94184	21 0040S 0430E 033	SW	SNOW WHITE E	FELDKAMP I W	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94184	21 0040S 0430E 033	SW	SNOW WHITE E	FELDKAMP PAMELA J	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94184	21 0040S 0430E 033	SW	SNOW WHITE E	NV W SILICA CORP	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94180	21 0050S 0430E 004	NW	SNOW WHITE A	FELDKAMP I W	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94180	21 0050S 0430E 004	NW	SNOW WHITE A	FELDKAMP PAMELA J	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94180	21 0050S 0430E 004	NW	SNOW WHITE A	NV W SILICA CORP	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94181	21 0050S 0430E 004	NW SW	SNOW WHITE B	FELDKAMP I W	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94181	21 0050S 0430E 004	NW SW	SNOW WHITE B	FELDKAMP PAMELA J	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94181	21 0050S 0430E 004	NW SW	SNOW WHITE B	NV W SILICA CORP	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94182	21 0050S 0430E 004	NW	SNOW WHITE C	FELDKAMP I W	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94182	21 0050S 0430E 004	NW	SNOW WHITE C	FELDKAMP PAMELA J	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94182	21 0050S 0430E 004	NW	SNOW WHITE C	NV W SILICA CORP	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94183	21 0050S 0430E 004	NW	SNOW WHITE D	FELDKAMP I W	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94183	21 0050S 0430E 004	NW	SNOW WHITE D	FELDKAMP PAMELA J	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94183	21 0050S 0430E 004	NW	SNOW WHITE D	NV W SILICA CORP	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94184	21 0050S 0430E 004	NW	SNOW WHITE E	FELDKAMP I W	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94184	21 0050S 0430E 004	NW	SNOW WHITE E	FELDKAMP PAMELA J	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94184	21 0050S 0430E 004	NW	SNOW WHITE E	NV W SILICA CORP	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94181	21 0050S 0430E 005	NE SE	SNOW WHITE B	FELDKAMP I W	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94181	21 0050S 0430E 005	NE SE	SNOW WHITE B	FELDKAMP PAMELA J	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94181	21 0050S 0430E 005	NE SE	SNOW WHITE B	NV W SILICA CORP	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94182	21 0050S 0430E 005	NE	SNOW WHITE C	FELDKAMP I W	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94182	21 0050S 0430E 005	NE	SNOW WHITE C	FELDKAMP PAMELA J	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94182	21 0050S 0430E 005	NE	SNOW WHITE C	NV W SILICA CORP	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94183	21 0050S 0430E 005	NE	SNOW WHITE D	FELDKAMP I W	NMC94168	384101	ACTIVE	7/20/1958	2005

NMC94183	21 0050S 0430E 005	NE	SNOW WHITE D	FELDKAMP PAMELA J	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94183	21 0050S 0430E 005	NE	SNOW WHITE D	NV W SILICA CORP	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94184	21 0050S 0430E 005	NE	SNOW WHITE E	FELDKAMP I W	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94184	21 0050S 0430E 005	NE	SNOW WHITE E	FELDKAMP PAMELA J	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94184	21 0050S 0430E 005	NE	SNOW WHITE E	NV W SILICA CORP	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94185	21 0050S 0430E 005	NE SE	SNOW WHITE F	FELDKAMP I W	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94185	21 0050S 0430E 005	NE SE	SNOW WHITE F	FELDKAMP PAMELA J	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94185	21 0050S 0430E 005	NE SE	SNOW WHITE F	NV W SILICA CORP	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94186	21 0050S 0430E 005	NE	SNOW WHITE G	FELDKAMP I W	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94186	21 0050S 0430E 005	NE	SNOW WHITE G	FELDKAMP PAMELA J	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94186	21 0050S 0430E 005	NE	SNOW WHITE G	NV W SILICA CORP	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94187	21 0050S 0430E 005	NE	SNOW WHITE H	FELDKAMP I W	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94187	21 0050S 0430E 005	NE	SNOW WHITE H	FELDKAMP PAMELA J	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94187	21 0050S 0430E 005	NE	SNOW WHITE H	NV W SILICA CORP	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94188	21 0050S 0430E 005	NE	SNOW WHITE I	FELDKAMP I W	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94188	21 0050S 0430E 005	NE	SNOW WHITE I	FELDKAMP PAMELA J	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94188	21 0050S 0430E 005	NE	SNOW WHITE I	NV W SILICA CORP	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94190	21 0050S 0430E 005	NE NW	SNOW WHITE K	FELDKAMP I W	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94190	21 0050S 0430E 005	NE NW	SNOW WHITE K	FELDKAMP PAMELA J	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94190	21 0050S 0430E 005	NE NW	SNOW WHITE K	NV W SILICA CORP	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94191	21 0050S 0430E 005	NE NW	SNOW WHITE L	FELDKAMP I W	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94191	21 0050S 0430E 005	NE NW	SNOW WHITE L	FELDKAMP PAMELA J	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94191	21 0050S 0430E 005	NE NW	SNOW WHITE L	NV W SILICA CORP	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94192	21 0050S 0430E 005	NE NW	SNOW WHITE M	FELDKAMP I W	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94192	21 0050S 0430E 005	NE NW	SNOW WHITE M	FELDKAMP PAMELA J	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94192	21 0050S 0430E 005	NE NW	SNOW WHITE M	NV W SILICA CORP	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94193	21 0050S 0430E 005	NE NW	SNOW WHITE N	FELDKAMP I W	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94193	21 0050S 0430E 005	NE NW	SNOW WHITE N	FELDKAMP PAMELA J	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94193	21 0050S 0430E 005	NE NW	SNOW WHITE N	NV W SILICA CORP	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94196	21 0050S 0430E 005	NW	SNOW WHITE # 14	FELDKAMP I W	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94196	21 0050S 0430E 005	NW	SNOW WHITE # 14	FELDKAMP PAMELA J	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94196	21 0050S 0430E 005	NW	SNOW WHITE # 14	NV W SILICA CORP	NMC94168	384101	ACTIVE	7/20/1958	2005
NMC94170	21 0050S 0430E 005	NE	SNOW WHITE # 3	BULLER DORA S	NMC94168	384101	ACTIVE	7/30/1958	2005
NMC94170	21 0050S 0430E 005	NE	SNOW WHITE # 3	BULLER ESTHER	NMC94168	384101	ACTIVE	7/30/1958	2005
NMC94170	21 0050S 0430E 005	NE	SNOW WHITE # 3	BULLER HARRY	NMC94168	384101	ACTIVE	7/30/1958	2005
NMC94170	21 0050S 0430E 005	NE	SNOW WHITE # 3	BULLER WESLEY	NMC94168	384101	ACTIVE	7/30/1958	2005
NMC94170	21 0050S 0430E 005	NE	SNOW WHITE # 3	FELDKAMP I W	NMC94168	384101	ACTIVE	7/30/1958	2005
NMC94170	21 0050S 0430E 005	NE	SNOW WHITE # 3	FELDKAMP PAMELA J	NMC94168	384101	ACTIVE	7/30/1958	2005
NMC94170	21 0050S 0430E 005	NE	SNOW WHITE # 3	NV W SILICA CORP	NMC94168	384101	ACTIVE	7/30/1958	2005
NMC94174	21 0040S 0430E 033	SW	SNOW WHITE # 7	BULLER DORA S	NMC94168	384101	ACTIVE	12/11/1958	2005
NMC94174	21 0040S 0430E 033	SW	SNOW WHITE # 7	BULLER ESTHER	NMC94168	384101	ACTIVE	12/11/1958	2005
NMC94174	21 0040S 0430E 033	SW	SNOW WHITE # 7	BULLER HARRY	NMC94168	384101	ACTIVE	12/11/1958	2005
NMC94174	21 0040S 0430E 033	SW	SNOW WHITE # 7	BULLER WESLEY	NMC94168	384101	ACTIVE	12/11/1958	2005
NMC94174	21 0040S 0430E 033	SW	SNOW WHITE # 7	FELDKAMP I W	NMC94168	384101	ACTIVE	12/11/1958	2005
NMC94174	21 0040S 0430E 033	SW	SNOW WHITE # 7	FELDKAMP PAMELA J	NMC94168	384101	ACTIVE	12/11/1958	2005
NMC94174	21 0040S 0430E 033	SW	SNOW WHITE # 7	NV W SILICA CORP	NMC94168	384101	ACTIVE	12/11/1958	2005
NMC94197	21 0050S 0430E 005	NW	SNOW WHITE # 15	FELDKAMP I W	NMC94168	384101	ACTIVE	12/11/1958	2005
NMC94197	21 0050S 0430E 005	NW	SNOW WHITE # 15	FELDKAMP PAMELA J	NMC94168	384101	ACTIVE	12/11/1958	2005
NMC94197	21 0050S 0430E 005	NW	SNOW WHITE # 15	NV W SILICA CORP	NMC94168	384101	ACTIVE	12/11/1958	2005
NMC94198	21 0050S 0430E 005	NW SW	SNOW WHITE # 16	FELDKAMP I W	NMC94168	384101	ACTIVE	12/11/1958	2005

NMC94198	21 0050S 0430E 005	NW SW	SNOW WHITE # 16	FELDKAMP PAMELA J	NMC94168	384101	ACTIVE	12/11/1958	2005
NMC94198	21 0050S 0430E 005	NW SW	SNOW WHITE # 16	NV W SILICA CORP	NMC94168	384101	ACTIVE	12/11/1958	2005
NMC94199	21 0050S 0430E 005	SW SE	SNOW WHITE # 17	FELDKAMP I W	NMC94168	384101	ACTIVE	12/11/1958	2005
NMC94199	21 0050S 0430E 005	SW SE	SNOW WHITE # 17	FELDKAMP PAMELA J	NMC94168	384101	ACTIVE	12/11/1958	2005
NMC94199	21 0050S 0430E 005	SW SE	SNOW WHITE # 17	NV W SILICA CORP	NMC94168	384101	ACTIVE	12/11/1958	2005
NMC94200	21 0050S 0430E 005	SE	SNOW WHITE # 18	FELDKAMP I W	NMC94168	384101	ACTIVE	12/11/1958	2005
NMC94200	21 0050S 0430E 005	SE	SNOW WHITE # 18	FELDKAMP PAMELA J	NMC94168	384101	ACTIVE	12/11/1958	2005
NMC94200	21 0050S 0430E 005	SE	SNOW WHITE # 18	NV W SILICA CORP	NMC94168	384101	ACTIVE	12/11/1958	2005
NMC94203	21 0050S 0430E 005	SE	SNOW WHITE # 22	FELDKAMP I W	NMC94168	384101	ACTIVE	2/14/1961	2005
NMC94203	21 0050S 0430E 005	SE	SNOW WHITE # 22	FELDKAMP PAMELA J	NMC94168	384101	ACTIVE	2/14/1961	2005
NMC94203	21 0050S 0430E 005	SE	SNOW WHITE # 22	NV W SILICA CORP	NMC94168	384101	ACTIVE	2/14/1961	2005
NMC94211	21 0050S 0430E 008	NW	SPARKLE # 1	FELDKAMP I W	NMC94168	384101	ACTIVE	3/8/1962	2005
NMC56416	21 0030S 0430E 010	SW	CAT # 4 EXT	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/25/1966	2005
NMC56417	21 0030S 0430E 010	SW	CAT # 5 EXT	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/25/1966	2005
NMC56413	21 0030S 0430E 010	SW	CAT # 1 EXT	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/26/1966	2005
NMC56414	21 0030S 0430E 010	SW	CAT # 2 EXT	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/26/1966	2005
NMC56415	21 0030S 0430E 010	SW	CAT # 3 EXT	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	8/26/1966	2005
NMC56622	21 0030S 0430E 004	SW	CYCLE	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	9/5/1966	2005
NMC56623	21 0030S 0430E 004	SW	CYCLE # 1	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	9/5/1966	2005
NMC56440	21 0030S 0430E 011	NE	LILY # 34	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	5/24/1967	2005
NMC56441	21 0030S 0430E 011	NE SE	LILY # 35	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	5/24/1967	2005
NMC56442	21 0030S 0430E 011	NE SE	LILY # 36	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	5/24/1967	2005
NMC56443	21 0030S 0430E 011	NE SE	LILY # 37	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	5/24/1967	2005
NMC56444	21 0030S 0430E 011	SE	LILY # 38	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	5/24/1967	2005
NMC56442	21 0030S 0430E 012	NW SW	LILY # 36	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	5/24/1967	2005
NMC56443	21 0030S 0430E 012	NW SW	LILY # 37	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	5/24/1967	2005
NMC56444	21 0030S 0430E 012	SW	LILY # 38	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	5/24/1967	2005
NMC56425	21 0020S 0430E 033	NE SE	BOB # 14	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	9/2/1967	2005
NMC56426	21 0020S 0430E 033	NE	BOB # 15	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	9/2/1967	2005
NMC56422	21 0030S 0430E 002	SW SE	BOB # 11	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	9/2/1967	2005
NMC56424	21 0030S 0430E 002	NE NW SW SE	BOB # 13	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	9/2/1967	2005
NMC56423	21 0030S 0430E 003	NE	BOB # 12	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	9/2/1967	2005
NMC56427	21 0030S 0430E 003	NE SE	BOB # 16	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	9/2/1967	2005
NMC56716	21 0030S 0430E 010	SE	PAUL # 1	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	7/30/1969	2005
NMC56717	21 0030S 0430E 010	SE	PAUL # 2	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	7/30/1969	2005
NMC56718	21 0030S 0430E 010	SW SE	PAUL # 3	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	7/30/1969	2005
NMC56719	21 0030S 0430E 010	SW SE	PAUL # 4	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	7/30/1969	2005
NMC56720	21 0030S 0430E 010	SE	PAUL # 5	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	7/30/1969	2005
NMC56721	21 0030S 0430E 010	SE	PAUL # 6	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	7/30/1969	2005
NMC56720	21 0030S 0430E 011	SW	PAUL # 5	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	7/30/1969	2005
NMC56719	21 0030S 0430E 015	NE	PAUL # 4	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	7/30/1969	2005
NMC56721	21 0030S 0430E 015	NE	PAUL # 6	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	7/30/1969	2005
NMC56541	21 0030S 0430E 010	SW	CAT # 3	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	9/2/1972	2005
NMC56542	21 0030S 0430E 010	SW	CAT # 4	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	9/2/1972	2005
NMC56543	21 0030S 0430E 010	NW SW	CAT # 5	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	9/2/1972	2005
NMC56544	21 0030S 0430E 010	NW	CAT # 6	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	9/2/1972	2005
NMC56545	21 0030S 0430E 010	NW	CAT # 7	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	9/2/1972	2005
NMC56548	21 0030S 0430E 010	NE NW SW SE	CAT # 10	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	9/2/1972	2005
NMC56549	21 0030S 0430E 010	NW SW SE	CAT # 11	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	9/2/1972	2005
NMC56460	21 0030S 0430E 010	NE SE	MOUSE	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	10/22/1972	2005

NMC56461	21 0030S 0430E 010	NE SE	LV #111	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	10/22/1972	2005
NMC56462	21 0030S 0430E 010	NE SE	LV #112	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	10/22/1972	2005
NMC56565	21 0030S 0430E 010	SW	CY # 16	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	10/22/1972	2005
NMC56462	21 0030S 0430E 011	NW SW	LV #112	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	10/22/1972	2005
NMC19516	21 0020N 0480E 029	SW SE	GOLDEN ARROW # 26	ERICKSON EINAR C	NMC19491	384101	ACTIVE	4/3/1973	2005
NMC19516	21 0020N 0480E 029	SW SE	GOLDEN ARROW # 26	MARUSEK JAMES	NMC19491	384101	ACTIVE	4/3/1973	2005
NMC19518	21 0020N 0480E 029	SW	GOLDEN ARROW # 28	ERICKSON EINAR C	NMC19491	384101	ACTIVE	4/3/1973	2005
NMC19518	21 0020N 0480E 029	SW	GOLDEN ARROW # 28	TAYLOR ROY C	NMC19491	384101	ACTIVE	4/3/1973	2005
NMC19498	21 0020N 0480E 029	SE	GOLDEN ARROW # 8	ERICKSON EINAR C	NMC19491	384101	ACTIVE	4/4/1973	2005
NMC19498	21 0020N 0480E 029	SE	GOLDEN ARROW # 8	WHITFIELD BRYAN III	NMC19491	384101	ACTIVE	4/4/1973	2005
NMC19500	21 0020N 0480E 029	SE	GOLDEN ARROW # 10	ERICKSON EINAR C	NMC19491	384101	ACTIVE	4/4/1973	2005
NMC19500	21 0020N 0480E 029	SE	GOLDEN ARROW # 10	KAVANAUGH CLIFFORD A	NMC19491	384101	ACTIVE	4/4/1973	2005
NMC19501	21 0020N 0480E 029	SE	GOLDEN ARROW # 11	ERICKSON EINAR C	NMC19491	384101	ACTIVE	4/4/1973	2005
NMC19501	21 0020N 0480E 029	SE	GOLDEN ARROW # 11	FARMER CLARENCE C	NMC19491	384101	ACTIVE	4/4/1973	2005
NMC19501	21 0020N 0480E 029	SE	GOLDEN ARROW # 11	FARMER PAULINE I	NMC19491	384101	ACTIVE	4/4/1973	2005
NMC74738	21 0040N 0500E 030	SW	WARM SPRINGS # 2	GODFREY GARY L	NMC74737	384101	ACTIVE	8/7/1974	2005
NMC56451	21 0020S 0430E 033	NE	NAVAJO # 3	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	6/22/1975	2005
NMC56451	21 0020S 0430E 034	NW SW	NAVAJO # 3	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	6/22/1975	2005
NMC74737	21 0040N 0492E 025	SE	WARM SPRINGS # 1	GODFREY GARY L	NMC74737	384101	ACTIVE	10/8/1976	2005
NMC22339	21 0040S 0430E 028	SW	SNOW KING # 9	NV W SILICA CORP	NMC22331	384101	ACTIVE	4/23/1977	2005
NMC22331	21 0040S 0430E 033	NW	SNOW KING # 1	NV W SILICA CORP	NMC22331	384101	ACTIVE	4/23/1977	2005
NMC22335	21 0040S 0430E 033	NW	SNOW KING # 5	NV W SILICA CORP	NMC22331	384101	ACTIVE	4/23/1977	2005
NMC22338	21 0040S 0430E 033	NW	SNOW KING # 8	NV W SILICA CORP	NMC22331	384101	ACTIVE	4/23/1977	2005
NMC22339	21 0040S 0430E 033	NW	SNOW KING # 9	NV W SILICA CORP	NMC22331	384101	ACTIVE	4/23/1977	2005
NMC16928	21 0030S 0430E 003	NW	BOB # 5	PACIFIC GOLD CORP	NMC16928	384101	ACTIVE	2/7/1978	2005
NMC22334	21 0040S 0430E 033	NW	SNOW KING # 4	NV W SILICA CORP	NMC22331	384101	ACTIVE	5/1/1978	2005
NMC22456	21 0030S 0430E 010	NE	EVE FRAC	PACIFIC GOLD CORP	NMC22155	384101	ACTIVE	6/18/1978	2005
NMC56646	21 0030S 0430E 003	SW	PIUTE EXT	PACIFIC GOLD CORP	NMC56403	384101	ACTIVE	3/7/1979	2005
NMC81826	21 0020S 0430E 032	SE	SILVER BELL # 3	HENDRICKSON ROBIN E	NMC81817	384101	ACTIVE	7/10/1979	2005
NMC81826	21 0020S 0430E 032	SE	SILVER BELL # 3	PACIFIC GOLD URANIUM	NMC81817	384101	ACTIVE	7/10/1979	2005
NMC81827	21 0020S 0430E 033	SW	HURLEY # 1	HENDRICKSON ROBIN E	NMC81817	384101	ACTIVE	7/10/1979	2005
NMC81827	21 0020S 0430E 033	SW	HURLEY # 1	PACIFIC GOLD URANIUM	NMC81817	384101	ACTIVE	7/10/1979	2005
NMC81818	21 0030S 0430E 002	SW	BOB # 3	HENDRICKSON ROBIN E	NMC81817	384101	ACTIVE	7/10/1979	2005
NMC81818	21 0030S 0430E 002	SW	BOB # 3	PACIFIC GOLD CORP	NMC81817	384101	ACTIVE	7/10/1979	2005
NMC81818	21 0030S 0430E 003	SE	BOB # 3	HENDRICKSON ROBIN E	NMC81817	384101	ACTIVE	7/10/1979	2005
NMC81818	21 0030S 0430E 003	SE	BOB # 3	PACIFIC GOLD CORP	NMC81817	384101	ACTIVE	7/10/1979	2005
NMC81819	21 0030S 0430E 003	SE	BOB # 4	HENDRICKSON ROBIN E	NMC81817	384101	ACTIVE	7/10/1979	2005
NMC81819	21 0030S 0430E 003	SE	BOB # 4	PACIFIC GOLD CORP	NMC81817	384101	ACTIVE	7/10/1979	2005
NMC81820	21 0030S 0430E 003	NW SW	BOB # 6	HENDRICKSON ROBIN E	NMC81817	384101	ACTIVE	7/10/1979	2005
NMC81820	21 0030S 0430E 003	NW SW	BOB # 6	PACIFIC GOLD URANIUM	NMC81817	384101	ACTIVE	7/10/1979	2005
NMC81817	21 0030S 0430E 004	NW	BOY	HENDRICKSON ROBIN E	NMC81817	384101	ACTIVE	7/10/1979	2005
NMC81817	21 0030S 0430E 004	NW	BOY	PACIFIC GOLD URANIUM	NMC81817	384101	ACTIVE	7/10/1979	2005
NMC81821	21 0030S 0430E 004	SE	ROSE FRAC	HENDRICKSON ROBIN E	NMC81817	384101	ACTIVE	7/10/1979	2005
NMC81821	21 0030S 0430E 004	SE	ROSE FRAC	PACIFIC GOLD URANIUM	NMC81817	384101	ACTIVE	7/10/1979	2005
NMC81822	21 0030S 0430E 004	NW	MIDGET # 1	HENDRICKSON ROBIN E	NMC81817	384101	ACTIVE	7/10/1979	2005
NMC81822	21 0030S 0430E 004	NW	MIDGET # 1	PACIFIC GOLD URANIUM	NMC81817	384101	ACTIVE	7/10/1979	2005
NMC81823	21 0030S 0430E 004	SE	MIDGET # 2	HENDRICKSON ROBIN E	NMC81817	384101	ACTIVE	7/10/1979	2005
NMC81823	21 0030S 0430E 004	SE	MIDGET # 2	PACIFIC GOLD URANIUM	NMC81817	384101	ACTIVE	7/10/1979	2005
NMC81824	21 0030S 0430E 004	SW	MIDGET # 3	HENDRICKSON ROBIN E	NMC81817	384101	ACTIVE	7/10/1979	2005
NMC81824	21 0030S 0430E 004	SW	MIDGET # 3	PACIFIC GOLD URANIUM	NMC81817	384101	ACTIVE	7/10/1979	2005

NMC81838	21 0030S 0430E 004	SW	GALE # 2	HENDRICKSON ROBIN E	NMC81817	384101	ACTIVE	7/11/1979	2005
NMC81838	21 0030S 0430E 004	SW	GALE # 2	PACIFIC GOLD URANIUM	NMC81817	384101	ACTIVE	7/11/1979	2005
NMC102030	21 0040S 0430E 033	SW	SNOW KING # 12	NV W SILICA CORP	NMC102030	384101	ACTIVE	8/6/1979	2005
NMC102031	21 0040S 0430E 028	SW	SNOW KING # 13	NV W SILICA CORP	NMC102030	384101	ACTIVE	8/9/1979	2005
NMC126854	21 0020N 0480E 029	SW	GOLDEN ARROW # 3	BERRY W F	NMC126816	384101	ACTIVE	8/15/1979	2005
NMC126854	21 0020N 0480E 029	SW	GOLDEN ARROW # 3	ERICKSON EINAR C	NMC126816	384101	ACTIVE	8/15/1979	2005
NMC126854	21 0020N 0480E 029	SW	GOLDEN ARROW # 3	SILVER VIKING CORP	NMC126816	384101	ACTIVE	8/15/1979	2005
NMC126855	21 0020N 0480E 029	SE	GOLDEN ARROW # 12	BERRY W F	NMC126816	384101	ACTIVE	8/15/1979	2005
NMC126855	21 0020N 0480E 029	SE	GOLDEN ARROW # 12	ERICKSON EINAR C	NMC126816	384101	ACTIVE	8/15/1979	2005
NMC126855	21 0020N 0480E 029	SE	GOLDEN ARROW # 12	SILVER VIKING CORP	NMC126816	384101	ACTIVE	8/15/1979	2005
NMC102032	21 0040S 0430E 028	SW SE	SNOW KING # 14	NV W SILICA CORP	NMC102030	384101	ACTIVE	8/15/1979	2005
NMC102033	21 0040S 0430E 028	SW	SNOW KING # 15	NV W SILICA CORP	NMC102030	384101	ACTIVE	8/15/1979	2005
NMC138299	21 0050S 0430E 005	SW	SPARKLE # 2	FELDKAMP BETTY	NMC138299	384101	ACTIVE	11/8/1979	2005
NMC138299	21 0050S 0430E 005	SW	SPARKLE # 2	M D DISTRIBUTING CO	NMC138299	384101	ACTIVE	11/8/1979	2005
NMC138299	21 0050S 0430E 005	SW	SPARKLE # 2	MOORE DANIEL R	NMC138299	384101	ACTIVE	11/8/1979	2005
NMC138300	21 0050S 0430E 005	SW	SPARKLE # 3	FELDKAMP BETTY	NMC138299	384101	ACTIVE	11/8/1979	2005
NMC138300	21 0050S 0430E 005	SW	SPARKLE # 3	M D DISTRIBUTING CO	NMC138299	384101	ACTIVE	11/8/1979	2005
NMC138300	21 0050S 0430E 005	SW	SPARKLE # 3	MOORE DANIEL R	NMC138299	384101	ACTIVE	11/8/1979	2005
NMC138301	21 0050S 0430E 005	SW	SPARKLE # 4	FELDKAMP BETTY	NMC138299	384101	ACTIVE	11/8/1979	2005
NMC138301	21 0050S 0430E 005	SW	SPARKLE # 4	M D DISTRIBUTING CO	NMC138299	384101	ACTIVE	11/8/1979	2005
NMC138301	21 0050S 0430E 005	SW	SPARKLE # 4	MOORE DANIEL R	NMC138299	384101	ACTIVE	11/8/1979	2005
NMC152936	21 0020N 0480E 029	NE	GOLDEN ARROW #330	SHEINBEIN DENALEE	NMC152887	384101	ACTIVE	4/29/1980	2005
NMC152936	21 0020N 0480E 029	NE	GOLDEN ARROW #330	SHEINBEIN MILT G FT	NMC152887	384101	ACTIVE	4/29/1980	2005
NMC152936	21 0020N 0480E 029	NE	GOLDEN ARROW #330	SHEINBEIN MILTON DR	NMC152887	384101	ACTIVE	4/29/1980	2005
NMC152937	21 0020N 0480E 029	NE	GOLDEN ARROW #331	BOGART-GUBER PTNRSHP	NMC152887	384101	ACTIVE	4/29/1980	2005
NMC171775	21 0040S 0430E 033	SW	SNOW KING # 17	NV W SILICA CORP	NMC171775	384101	ACTIVE	8/13/1980	2005
NMC171775	21 0050S 0430E 004	NW	SNOW KING # 17	NV W SILICA CORP	NMC171775	384101	ACTIVE	8/13/1980	2005
NMC260226	21 0040S 0430E 028	NW	SNOW KING # 23	NV W SILICA CORP	NMC260221	384101	ACTIVE	11/8/1982	2005
NMC297478	21 0040N 0500E 030	SW	WARM SPRINGS # 3	GODFREY GARY L	NMC297478	384101	ACTIVE	2/3/1984	2005
NMC361699	21 0030S 0430E 010	SW SE	TAC # 1	PACIFIC GOLD CORP	NMC361697	384101	ACTIVE	1/21/1986	2005
NMC361700	21 0030S 0430E 010	SW SE	TAC # 2	PACIFIC GOLD CORP	NMC361697	384101	ACTIVE	1/21/1986	2005
NMC361701	21 0030S 0430E 010	SW SE	TAC # 9	PACIFIC GOLD CORP	NMC361697	384101	ACTIVE	1/21/1986	2005
NMC361699	21 0030S 0430E 015	NE NW	TAC # 1	PACIFIC GOLD CORP	NMC361697	384101	ACTIVE	1/21/1986	2005
NMC361700	21 0030S 0430E 015	NE NW	TAC # 2	PACIFIC GOLD CORP	NMC361697	384101	ACTIVE	1/21/1986	2005
NMC361697	21 0030S 0430E 011	SW	TAR FRACTION	PACIFIC GOLD CORP	NMC361697	384101	ACTIVE	2/1/1986	2005
NMC414538	21 0050S 0430E 005	NW SW	SPARKLE # 10	FELDKAMP BETTY	NMC414537	384101	ACTIVE	6/7/1987	2005
NMC414538	21 0050S 0430E 005	NW SW	SPARKLE # 10	MOORE DANIEL R	NMC414537	384101	ACTIVE	6/7/1987	2005
NMC631634	21 0030S 0430E 003	NE NW	PGF NO 2	CAMECO US INC	NMC631565	384101	ACTIVE	7/11/1991	2005
NMC631635	21 0030S 0430E 003	NW SW	PGF NO 3	CAMECO US INC	NMC631565	384101	ACTIVE	7/11/1991	2005
NMC631636	21 0030S 0430E 003	SW SE	PGF NO 4	CAMECO US INC	NMC631565	384101	ACTIVE	7/11/1991	2005
NMC631637	21 0030S 0430E 003	SW	PGF NO 5	CAMECO US INC	NMC631565	384101	ACTIVE	7/11/1991	2005
NMC631645	21 0020S 0430E 028	SW	PGF NO 13	CAMECO US INC	NMC631565	384101	ACTIVE	7/12/1991	2005
NMC631641	21 0020S 0430E 032	SE	PGF NO 9	CAMECO US INC	NMC631565	384101	ACTIVE	7/12/1991	2005
NMC631642	21 0020S 0430E 032	SE	PGF NO 10	CAMECO US INC	NMC631565	384101	ACTIVE	7/12/1991	2005
NMC631641	21 0020S 0430E 033	SW	PGF NO 9	CAMECO US INC	NMC631565	384101	ACTIVE	7/12/1991	2005
NMC631642	21 0020S 0430E 033	SW	PGF NO 10	CAMECO US INC	NMC631565	384101	ACTIVE	7/12/1991	2005
NMC631643	21 0020S 0430E 033	SW	PGF NO 11	CAMECO US INC	NMC631565	384101	ACTIVE	7/12/1991	2005
NMC631644	21 0020S 0430E 033	SW SE	PGF NO 12	CAMECO US INC	NMC631565	384101	ACTIVE	7/12/1991	2005
NMC631645	21 0020S 0430E 033	NW	PGF NO 13	CAMECO US INC	NMC631565	384101	ACTIVE	7/12/1991	2005
NMC631641	21 0030S 0430E 004	NW	PGF NO 9	CAMECO US INC	NMC631565	384101	ACTIVE	7/12/1991	2005

NMC631642	21 0030S 0430E 004	NW	PGF NO 10	CAMECO US INC	NMC631565	384101	ACTIVE	7/12/1991	2005
NMC635680	21 0100S 0470E 034	NW	TANK #4	YOUNGHANS GEORGE E	NMC635677	384101	ACTIVE	10/26/1991	2005
NMC635680	21 0100S 0470E 034	NW	TANK #4	YOUNGHANS LARENE M	NMC635677	384101	ACTIVE	10/26/1991	2005
NMC635686	21 0100S 0470E 027	SW	TANK #10	YOUNGHANS GEORGE E	NMC635677	384101	ACTIVE	10/27/1991	2005
NMC635686	21 0100S 0470E 027	SW	TANK #10	YOUNGHANS LARENE M	NMC635677	384101	ACTIVE	10/27/1991	2005
NMC635687	21 0100S 0470E 027	SW	TANK #11	YOUNGHANS GEORGE E	NMC635677	384101	ACTIVE	10/27/1991	2005
NMC635687	21 0100S 0470E 027	SW	TANK #11	YOUNGHANS LARENE M	NMC635677	384101	ACTIVE	10/27/1991	2005
NMC635686	21 0100S 0470E 028	SE	TANK #10	YOUNGHANS GEORGE E	NMC635677	384101	ACTIVE	10/27/1991	2005
NMC635686	21 0100S 0470E 028	SE	TANK #10	YOUNGHANS LARENE M	NMC635677	384101	ACTIVE	10/27/1991	2005
NMC635688	21 0100S 0470E 034	NW	TANK #12	YOUNGHANS GEORGE E	NMC635677	384101	ACTIVE	10/27/1991	2005
NMC635688	21 0100S 0470E 034	NW	TANK #12	YOUNGHANS LARENE M	NMC635677	384101	ACTIVE	10/27/1991	2005
NMC635689	21 0100S 0470E 034	NW SW	TANK #13	MULHALL JOSEPH P	NMC635677	384101	ACTIVE	10/27/1991	2005
NMC635689	21 0100S 0470E 034	NW SW	TANK #13	MULHALL SHARON K	NMC635677	384101	ACTIVE	10/27/1991	2005
NMC635690	21 0100S 0470E 034	SW	TANK #14	MULHALL JOSEPH P	NMC635677	384101	ACTIVE	10/27/1991	2005
NMC635690	21 0100S 0470E 034	SW	TANK #14	MULHALL SHARON K	NMC635677	384101	ACTIVE	10/27/1991	2005
NMC635691	21 0100S 0470E 034	SW	TANK #15	MULHALL JOSEPH P	NMC635677	384101	ACTIVE	10/27/1991	2005
NMC635691	21 0100S 0470E 034	SW	TANK #15	MULHALL SHARON K	NMC635677	384101	ACTIVE	10/27/1991	2005
NMC636984	21 0100S 0470E 028	SE	TANK #16	YOUNGHANS GEORGE E	NMC636984	384101	ACTIVE	12/22/1991	2005
NMC636984	21 0100S 0470E 028	SE	TANK #16	YOUNGHANS LARENE M	NMC636984	384101	ACTIVE	12/22/1991	2005
NMC636985	21 0100S 0470E 028	SE	TANK #17	YOUNGHANS GEORGE E	NMC636984	384101	ACTIVE	12/22/1991	2005
NMC636985	21 0100S 0470E 028	SE	TANK #17	YOUNGHANS LARENE M	NMC636984	384101	ACTIVE	12/22/1991	2005
NMC636986	21 0100S 0470E 028	SE	TANK #18	YOUNGHANS GEORGE E	NMC636984	384101	ACTIVE	12/22/1991	2005
NMC636986	21 0100S 0470E 028	SE	TANK #18	YOUNGHANS LARENE M	NMC636984	384101	ACTIVE	12/22/1991	2005
NMC708191	21 0020S 0430E 020	NW SW	WEIGHT-3	KENNECOTT EXPL CO	NMC708189	384101	ACTIVE	9/1/1994	2005
NMC708192	21 0020S 0430E 020	SW	WEIGHT-4	KENNECOTT EXPL CO	NMC708189	384101	ACTIVE	9/1/1994	2005
NMC708193	21 0020S 0430E 020	NW SW	WEIGHT-5	KENNECOTT EXPL CO	NMC708189	384101	ACTIVE	9/1/1994	2005
NMC708194	21 0020S 0430E 020	SW	WEIGHT-6	KENNECOTT EXPL CO	NMC708189	384101	ACTIVE	9/1/1994	2005
NMC708195	21 0020S 0430E 020	NW SW	WEIGHT-7	KENNECOTT EXPL CO	NMC708189	384101	ACTIVE	9/1/1994	2005
NMC708196	21 0020S 0430E 020	SW	WEIGHT-8	KENNECOTT EXPL CO	NMC708189	384101	ACTIVE	9/1/1994	2005
NMC708197	21 0020S 0430E 020	NW SW	WEIGHT-9	KENNECOTT EXPL CO	NMC708189	384101	ACTIVE	9/1/1994	2005
NMC708198	21 0020S 0430E 020	SW	WEIGHT-10	KENNECOTT EXPL CO	NMC708189	384101	ACTIVE	9/1/1994	2005
NMC708199	21 0020S 0430E 020	NE NW SW SE	WEIGHT-11	KENNECOTT EXPL CO	NMC708189	384101	ACTIVE	9/1/1994	2005
NMC708200	21 0020S 0430E 020	SW SE	WEIGHT-12	KENNECOTT EXPL CO	NMC708189	384101	ACTIVE	9/1/1994	2005
NMC708194	21 0020S 0430E 029	NW	WEIGHT-6	KENNECOTT EXPL CO	NMC708189	384101	ACTIVE	9/1/1994	2005
NMC708196	21 0020S 0430E 029	NW	WEIGHT-8	KENNECOTT EXPL CO	NMC708189	384101	ACTIVE	9/1/1994	2005
NMC708198	21 0020S 0430E 029	NW	WEIGHT-10	KENNECOTT EXPL CO	NMC708189	384101	ACTIVE	9/1/1994	2005
NMC708200	21 0020S 0430E 029	NE NW	WEIGHT-12	KENNECOTT EXPL CO	NMC708189	384101	ACTIVE	9/1/1994	2005
NMC705517	21 0050S 0430E 005	NW	CUP 31	FELDKAMP I W	NMC705517	384101	ACTIVE	9/1/1994	2005
NMC705517	21 0050S 0430E 005	NW	CUP 31	FELDKAMP PAMELA J	NMC705517	384101	ACTIVE	9/1/1994	2005
NMC705517	21 0050S 0430E 005	NW	CUP 31	NV WESTERN SILICA CO	NMC705517	384101	ACTIVE	9/1/1994	2005
NMC705518	21 0050S 0430E 005	NW	CUP 32	FELDKAMP I W	NMC705517	384101	ACTIVE	9/1/1994	2005
NMC705518	21 0050S 0430E 005	NW	CUP 32	FELDKAMP PAMELA J	NMC705517	384101	ACTIVE	9/1/1994	2005
NMC705518	21 0050S 0430E 005	NW	CUP 32	NV WESTERN SILICA CO	NMC705517	384101	ACTIVE	9/1/1994	2005
NMC710419	21 0030S 0430E 010	SE	BURK 1	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/24/1994	2005
NMC710421	21 0030S 0430E 010	SE	BURK 3	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/24/1994	2005
NMC710423	21 0030S 0430E 010	SE	BURK 5	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/24/1994	2005
NMC710425	21 0030S 0430E 010	SE	BURK 7	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/24/1994	2005
NMC710419	21 0030S 0430E 011	SW	BURK 1	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/24/1994	2005
NMC710420	21 0030S 0430E 011	SW SE	BURK 2	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/24/1994	2005
NMC710421	21 0030S 0430E 011	SW	BURK 3	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/24/1994	2005

NMC710422	21 0030S 0430E 011	SW SE	BURK 4	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/24/1994	2005
NMC710423	21 0030S 0430E 011	SW	BURK 5	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/24/1994	2005
NMC710424	21 0030S 0430E 011	SW	BURK 6	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/24/1994	2005
NMC710425	21 0030S 0430E 011	SW	BURK 7	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/24/1994	2005
NMC710426	21 0030S 0430E 011	SW	BURK 8	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/24/1994	2005
NMC710429	21 0030S 0430E 011	NE SW SE	BURK 11	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/24/1994	2005
NMC710430	21 0030S 0430E 011	SE	BURK 12	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/24/1994	2005
NMC710431	21 0030S 0430E 011	SE	BURK 13	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/24/1994	2005
NMC710432	21 0030S 0430E 011	SE	BURK 14	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/24/1994	2005
NMC710433	21 0030S 0430E 011	SE	BURK 15	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/24/1994	2005
NMC710434	21 0030S 0430E 011	SE	BURK 16	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/24/1994	2005
NMC710435	21 0030S 0430E 011	SE	BURK 17	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/24/1994	2005
NMC710436	21 0030S 0430E 011	SE	BURK 18	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/24/1994	2005
NMC710437	21 0030S 0430E 011	SW SE	BURK 19	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/24/1994	2005
NMC710479	21 0030S 0430E 011	SE	BURK 61	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/24/1994	2005
NMC710432	21 0030S 0430E 012	SW	BURK 14	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/24/1994	2005
NMC710434	21 0030S 0430E 012	SW	BURK 16	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/24/1994	2005
NMC710436	21 0030S 0430E 012	SW	BURK 18	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/24/1994	2005
NMC710479	21 0030S 0430E 012	SW	BURK 61	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/24/1994	2005
NMC710436	21 0030S 0430E 013	NW	BURK 18	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/24/1994	2005
NMC710438	21 0030S 0430E 013	NW	BURK 20	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/24/1994	2005
NMC710440	21 0030S 0430E 013	NW	BURK 22	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/24/1994	2005
NMC710424	21 0030S 0430E 014	NW	BURK 6	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/24/1994	2005
NMC710425	21 0030S 0430E 014	NW	BURK 7	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/24/1994	2005
NMC710426	21 0030S 0430E 014	NW	BURK 8	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/24/1994	2005
NMC710427	21 0030S 0430E 014	NW	BURK 9	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/24/1994	2005
NMC710428	21 0030S 0430E 014	NW	BURK 10	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/24/1994	2005
NMC710435	21 0030S 0430E 014	NE	BURK 17	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/24/1994	2005
NMC710436	21 0030S 0430E 014	NE	BURK 18	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/24/1994	2005
NMC710437	21 0030S 0430E 014	NE NW	BURK 19	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/24/1994	2005
NMC710438	21 0030S 0430E 014	NE	BURK 20	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/24/1994	2005
NMC710439	21 0030S 0430E 014	NE NW	BURK 21	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/24/1994	2005
NMC710440	21 0030S 0430E 014	NE	BURK 22	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/24/1994	2005
NMC710441	21 0030S 0430E 014	NE NW	BURK 23	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/24/1994	2005
NMC710442	21 0030S 0430E 014	NE	BURK 24	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/24/1994	2005
NMC710425	21 0030S 0430E 015	NE	BURK 7	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/24/1994	2005
NMC710427	21 0030S 0430E 015	NE	BURK 9	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/24/1994	2005
NMC710443	21 0030S 0430E 012	NW SW	BURK 25	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/25/1994	2005
NMC710444	21 0030S 0430E 012	SW SE	BURK 26	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/25/1994	2005
NMC710445	21 0030S 0430E 012	SW	BURK 27	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/25/1994	2005
NMC710446	21 0030S 0430E 012	SW SE	BURK 28	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/25/1994	2005
NMC710447	21 0030S 0430E 012	SW	BURK 29	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/25/1994	2005
NMC710448	21 0030S 0430E 012	SW SE	BURK 30	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/25/1994	2005
NMC710449	21 0030S 0430E 012	SW	BURK 31	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/25/1994	2005
NMC710450	21 0030S 0430E 012	SW SE	BURK 32	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/25/1994	2005
NMC710451	21 0030S 0430E 012	SW	BURK 33	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/25/1994	2005
NMC710452	21 0030S 0430E 012	SW	BURK 34	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/25/1994	2005
NMC710453	21 0030S 0430E 012	SW	BURK 35	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/25/1994	2005
NMC710461	21 0030S 0430E 012	NE SE	BURK 43	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/25/1994	2005
NMC710462	21 0030S 0430E 012	SE	BURK 44	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/25/1994	2005

NMC710463	21 0030S 0430E 012	SE	BURK 45	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/25/1994	2005
NMC710464	21 0030S 0430E 012	SE	BURK 46	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/25/1994	2005
NMC710465	21 0030S 0430E 012	SE	BURK 47	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/25/1994	2005
NMC710466	21 0030S 0430E 012	SE	BURK 48	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/25/1994	2005
NMC710467	21 0030S 0430E 012	SE	BURK 49	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/25/1994	2005
NMC710450	21 0030S 0430E 013	NE	BURK 32	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/25/1994	2005
NMC710451	21 0030S 0430E 013	NW	BURK 33	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/25/1994	2005
NMC710452	21 0030S 0430E 013	NE NW	BURK 34	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/25/1994	2005
NMC710453	21 0030S 0430E 013	NW	BURK 35	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/25/1994	2005
NMC710454	21 0030S 0430E 013	NE NW	BURK 36	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/25/1994	2005
NMC710455	21 0030S 0430E 013	NW	BURK 37	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/25/1994	2005
NMC710456	21 0030S 0430E 013	NE NW	BURK 38	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/25/1994	2005
NMC710457	21 0030S 0430E 013	NW	BURK 39	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/25/1994	2005
NMC710458	21 0030S 0430E 013	NE NW	BURK 40	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/25/1994	2005
NMC710459	21 0030S 0430E 013	NW SW	BURK 41	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/25/1994	2005
NMC710460	21 0030S 0430E 013	NE NW SW SE	BURK 42	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/25/1994	2005
NMC710466	21 0030S 0430E 013	NE	BURK 48	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/25/1994	2005
NMC710467	21 0030S 0430E 013	NE	BURK 49	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/25/1994	2005
NMC710468	21 0030S 0430E 013	NE	BURK 50	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/25/1994	2005
NMC710469	21 0030S 0430E 013	NE	BURK 51	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/25/1994	2005
NMC710470	21 0030S 0430E 013	NE	BURK 52	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/25/1994	2005
NMC710471	21 0030S 0430E 013	NE	BURK 53	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/25/1994	2005
NMC710472	21 0030S 0430E 013	NE	BURK 54	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/25/1994	2005
NMC710473	21 0030S 0430E 013	NE	BURK 55	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/25/1994	2005
NMC710474	21 0030S 0430E 013	NE	BURK 56	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/25/1994	2005
NMC710475	21 0030S 0430E 013	NE SE	BURK 57	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/25/1994	2005
NMC710476	21 0030S 0430E 013	NE SE	BURK 58	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/25/1994	2005
NMC710477	21 0030S 0430E 013	NE SE	BURK 59	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/25/1994	2005
NMC710478	21 0030S 0430E 013	SE	BURK 60	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/25/1994	2005
NMC710457	21 0030S 0430E 014	NE	BURK 39	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/25/1994	2005
NMC710459	21 0030S 0430E 014	NE	BURK 41	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/25/1994	2005
NMC710461	21 0030S 0440E 007	SW	BURK 43	NV GOLD & CASINOS	NMC710419	384101	ACTIVE	9/25/1994	2005
NMC715360	21 0050S 0430E 008	NW	CUP 66	NEVADA WESTERN SILICA CORP	NMC715355	384101	ACTIVE	2/14/1995	2005
NMC715361	21 0050S 0430E 008	NW	CUP 67	NEVADA WESTERN SILICA CORP	NMC715355	384101	ACTIVE	2/14/1995	2005
NMC716687	21 0030S 0430E 014	NW	BURK 63	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/6/1995	2005
NMC716688	21 0030S 0430E 014	NW	BURK 64	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/6/1995	2005
NMC716689	21 0030S 0430E 014	NW	BURK 65	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/6/1995	2005
NMC716690	21 0030S 0430E 014	NW SW	BURK 66	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/6/1995	2005
NMC716691	21 0030S 0430E 014	SW	BURK 67	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/6/1995	2005
NMC716692	21 0030S 0430E 014	SW	BURK 68	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/6/1995	2005
NMC716693	21 0030S 0430E 014	SW	BURK 69	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/6/1995	2005
NMC716694	21 0030S 0430E 014	SW	BURK 70	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/6/1995	2005
NMC716695	21 0030S 0430E 014	SW	BURK 71	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/6/1995	2005
NMC716696	21 0030S 0430E 014	SW	BURK 72	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/6/1995	2005
NMC716697	21 0030S 0430E 014	NE NW	BURK 73	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/6/1995	2005
NMC716698	21 0030S 0430E 014	NE SE	BURK 74	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/6/1995	2005
NMC716699	21 0030S 0430E 014	SW SE	BURK 75	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/6/1995	2005
NMC716700	21 0030S 0430E 014	SE	BURK 76	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/6/1995	2005
NMC716701	21 0030S 0430E 014	SW SE	BURK 77	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/6/1995	2005
NMC716702	21 0030S 0430E 014	SE	BURK 78	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/6/1995	2005

NMC716703	21 0030S 0430E 014	SW	BURK 79	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/6/1995	2005
NMC716704	21 0030S 0430E 014	SE	BURK 80	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/6/1995	2005
NMC716705	21 0030S 0430E 014	SW	BURK 81	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/6/1995	2005
NMC716706	21 0030S 0430E 014	SE	BURK 82	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/6/1995	2005
NMC716687	21 0030S 0430E 015	NE	BURK 63	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/6/1995	2005
NMC716689	21 0030S 0430E 015	NE	BURK 65	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/6/1995	2005
NMC716691	21 0030S 0430E 015	SE	BURK 67	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/6/1995	2005
NMC716693	21 0030S 0430E 015	SE	BURK 69	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/6/1995	2005
NMC716694	21 0030S 0430E 015	SE	BURK 70	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/6/1995	2005
NMC716695	21 0030S 0430E 015	SE	BURK 71	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/6/1995	2005
NMC716696	21 0030S 0430E 015	SE	BURK 72	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/6/1995	2005
NMC716707	21 0030S 0430E 013	SW	BURK 83	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/7/1995	2005
NMC716708	21 0030S 0430E 013	SW	BURK 84	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/7/1995	2005
NMC716709	21 0030S 0430E 013	SW	BURK 85	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/7/1995	2005
NMC716710	21 0030S 0430E 013	SW	BURK 86	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/7/1995	2005
NMC716711	21 0030S 0430E 013	SW	BURK 87	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/7/1995	2005
NMC716712	21 0030S 0430E 013	SW	BURK 88	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/7/1995	2005
NMC716713	21 0030S 0430E 013	SW	BURK 89	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/7/1995	2005
NMC716714	21 0030S 0430E 013	SW	BURK 90	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/7/1995	2005
NMC716715	21 0030S 0430E 013	SW	BURK 91	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/7/1995	2005
NMC716716	21 0030S 0430E 013	SW	BURK 92	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/7/1995	2005
NMC716717	21 0030S 0430E 013	SW SE	BURK 93	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/7/1995	2005
NMC716718	21 0030S 0430E 013	SE	BURK 94	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/7/1995	2005
NMC716719	21 0030S 0430E 013	SW SE	BURK 95	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/7/1995	2005
NMC716720	21 0030S 0430E 013	SE	BURK 96	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/7/1995	2005
NMC716721	21 0030S 0430E 013	SW SE	BURK 97	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/7/1995	2005
NMC716722	21 0030S 0430E 013	SE	BURK 98	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/7/1995	2005
NMC716723	21 0030S 0430E 013	SW SE	BURK 99	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/7/1995	2005
NMC716725	21 0030S 0430E 013	SW SE	BURK 101	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/7/1995	2005
NMC716707	21 0030S 0430E 014	SE	BURK 83	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/7/1995	2005
NMC716709	21 0030S 0430E 014	SE	BURK 85	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/7/1995	2005
NMC716711	21 0030S 0430E 014	SE	BURK 87	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/7/1995	2005
NMC716713	21 0030S 0430E 014	SE	BURK 89	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/7/1995	2005
NMC716715	21 0030S 0430E 014	SE	BURK 91	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/7/1995	2005
NMC716713	21 0030S 0430E 023	NE	BURK 89	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/7/1995	2005
NMC716715	21 0030S 0430E 023	NE	BURK 91	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/7/1995	2005
NMC716713	21 0030S 0430E 024	SW	BURK 89	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/7/1995	2005
NMC716714	21 0030S 0430E 024	NW	BURK 90	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/7/1995	2005
NMC716715	21 0030S 0430E 024	NW	BURK 91	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/7/1995	2005
NMC716716	21 0030S 0430E 024	NW	BURK 92	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/7/1995	2005
NMC716722	21 0030S 0430E 024	NE	BURK 98	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/7/1995	2005
NMC716723	21 0030S 0430E 024	NE NW	BURK 99	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/7/1995	2005
NMC716724	21 0030S 0430E 024	NE	BURK 100	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/7/1995	2005
NMC716725	21 0030S 0430E 024	NE NW	BURK 101	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/7/1995	2005
NMC716726	21 0030S 0430E 024	NE	BURK 102	NV GOLD & CASINOS	NMC716687	384101	ACTIVE	3/7/1995	2005
NMC717732	21 0110S 0480E 019	SE	GIGI 1	CARR TAMERA LEANN	NMC717732	384101	ACTIVE	4/13/1995	2005
NMC717732	21 0110S 0480E 019	SE	GIGI 1	GARBER JUDITH ANN	NMC717732	384101	ACTIVE	4/13/1995	2005
NMC717733	21 0110S 0480E 019	SE	GIGI 2	CARR TAMERA LEANN	NMC717732	384101	ACTIVE	4/13/1995	2005
NMC717733	21 0110S 0480E 019	SE	GIGI 2	GARBER JUDITH ANN	NMC717732	384101	ACTIVE	4/13/1995	2005
NMC717734	21 0110S 0480E 019	SE	GIGI 3	CARR TAMERA LEANN	NMC717732	384101	ACTIVE	4/13/1995	2005

NMC717734	21 0110S 0480E 019	SE	GIGI 3	GARBER JUDITH ANN	NMC717732	384101	ACTIVE	4/13/1995	2005
NMC717732	21 0110S 0480E 030	NE	GIGI 1	CARR TAMERA LEANN	NMC717732	384101	ACTIVE	4/13/1995	2005
NMC717732	21 0110S 0480E 030	NE	GIGI 1	GARBER JUDITH ANN	NMC717732	384101	ACTIVE	4/13/1995	2005
NMC717733	21 0110S 0480E 030	NE	GIGI 2	CARR TAMERA LEANN	NMC717732	384101	ACTIVE	4/13/1995	2005
NMC717733	21 0110S 0480E 030	NE	GIGI 2	GARBER JUDITH ANN	NMC717732	384101	ACTIVE	4/13/1995	2005
NMC717734	21 0110S 0480E 030	NE	GIGI 3	CARR TAMERA LEANN	NMC717732	384101	ACTIVE	4/13/1995	2005
NMC717734	21 0110S 0480E 030	NE	GIGI 3	GARBER JUDITH ANN	NMC717732	384101	ACTIVE	4/13/1995	2005
NMC729849	21 0110S 0480E 032	SW	SAPO #10	AMARGOSA EXPL CO	NMC729837	384101	ACTIVE	10/29/1995	2005
NMC729849	21 0110S 0480E 032	SW	SAPO #10	JABA (US) INC	NMC729837	384101	ACTIVE	10/29/1995	2005
NMC729851	21 0110S 0480E 032	SW	SAPO #12	AMARGOSA EXPL CO	NMC729837	384101	ACTIVE	10/29/1995	2005
NMC729851	21 0110S 0480E 032	SW	SAPO #12	JABA (US) INC	NMC729837	384101	ACTIVE	10/29/1995	2005
NMC729853	21 0110S 0480E 032	SW	SAPO #14	AMARGOSA EXPL CO	NMC729837	384101	ACTIVE	10/29/1995	2005
NMC729853	21 0110S 0480E 032	SW	SAPO #14	JABA (US) INC	NMC729837	384101	ACTIVE	10/29/1995	2005
NMC729855	21 0110S 0480E 032	SW	SAPO #16	AMARGOSA EXPL CO	NMC729837	384101	ACTIVE	10/29/1995	2005
NMC729855	21 0110S 0480E 032	SW	SAPO #16	JABA (US) INC	NMC729837	384101	ACTIVE	10/29/1995	2005
NMC729855	21 0120S 0480E 005	NW	SAPO #16	AMARGOSA EXPL CO	NMC729837	384101	ACTIVE	10/29/1995	2005
NMC729855	21 0120S 0480E 005	NW	SAPO #16	JABA (US) INC	NMC729837	384101	ACTIVE	10/29/1995	2005
NMC757482	21 0020S 0430E 032	NW SW	B&B 7	ROMARCO NEVADA GOLDFIELD INC	NMC757476	384101	ACTIVE	10/7/1996	2005
NMC757483	21 0020S 0430E 032	NW SW	B&B 8	ROMARCO NEVADA GOLDFIELD INC	NMC757476	384101	ACTIVE	10/7/1996	2005
NMC757484	21 0020S 0430E 032	NW SW	B&B 9	ROMARCO NEVADA GOLDFIELD INC	NMC757476	384101	ACTIVE	10/7/1996	2005
NMC757485	21 0020S 0430E 032	NE NW SW SE	B&B 10	ROMARCO NEVADA GOLDFIELD INC	NMC757476	384101	ACTIVE	10/7/1996	2005
NMC757486	21 0020S 0430E 032	SW SE	B&B 11	ROMARCO NEVADA GOLDFIELD INC	NMC757476	384101	ACTIVE	10/7/1996	2005
NMC757487	21 0020S 0430E 032	SW SE	B&B 12	ROMARCO NEVADA GOLDFIELD INC	NMC757476	384101	ACTIVE	10/7/1996	2005
NMC757488	21 0020S 0430E 032	SW SE	B&B 13	ROMARCO NEVADA GOLDFIELD INC	NMC757476	384101	ACTIVE	10/7/1996	2005
NMC783850	21 0020S 0430E 016	NW SW	V64	ROMARCO NEVADA GOLDFIELD INC	NMC783815	384101	ACTIVE	10/24/1997	2005
NMC783851	21 0020S 0430E 016	NW	V65	ROMARCO NEVADA GOLDFIELD INC	NMC783815	384101	ACTIVE	10/24/1997	2005
NMC783852	21 0020S 0430E 016	NW	V66	ROMARCO NEVADA GOLDFIELD INC	NMC783815	384101	ACTIVE	10/24/1997	2005
NMC783833	21 0020S 0430E 020	NW	V47	ROMARCO NEVADA GOLDFIELD INC	NMC783815	384101	ACTIVE	10/24/1997	2005
NMC783847	21 0020S 0430E 020	NE NW	V61	ROMARCO NEVADA GOLDFIELD INC	NMC783815	384101	ACTIVE	10/24/1997	2005
NMC783848	21 0020S 0430E 020	NE	V62	ROMARCO NEVADA GOLDFIELD INC	NMC783815	384101	ACTIVE	10/24/1997	2005
NMC783849	21 0020S 0430E 020	NE	V63	ROMARCO NEVADA GOLDFIELD INC	NMC783815	384101	ACTIVE	10/24/1997	2005
NMC788294	21 0020S 0430E 020	NE SE	MIK 17	ROMARCO NEVADA GOLDFIELD INC	NMC788278	384101	ACTIVE	1/17/1998	2005
NMC788295	21 0020S 0430E 020	SE	MIK 18	ROMARCO NEVADA GOLDFIELD INC	NMC788278	384101	ACTIVE	1/17/1998	2005
NMC788278	21 0020S 0430E 021	NE NW	MIK 1	ROMARCO NEVADA GOLDFIELD INC	NMC788278	384101	ACTIVE	1/17/1998	2005
NMC788279	21 0020S 0430E 021	NE	MIK 2	ROMARCO NEVADA GOLDFIELD INC	NMC788278	384101	ACTIVE	1/17/1998	2005
NMC788280	21 0020S 0430E 021	NE NW SW SE	MIK 3	ROMARCO NEVADA GOLDFIELD INC	NMC788278	384101	ACTIVE	1/17/1998	2005
NMC788281	21 0020S 0430E 021	NE SE	MIK 4	ROMARCO NEVADA GOLDFIELD INC	NMC788278	384101	ACTIVE	1/17/1998	2005
NMC788282	21 0020S 0430E 021	SW SE	MIK 5	ROMARCO NEVADA GOLDFIELD INC	NMC788278	384101	ACTIVE	1/17/1998	2005
NMC788283	21 0020S 0430E 021	SE	MIK 6	ROMARCO NEVADA GOLDFIELD INC	NMC788278	384101	ACTIVE	1/17/1998	2005
NMC788284	21 0020S 0430E 021	SW SE	MIK 7	ROMARCO NEVADA GOLDFIELD INC	NMC788278	384101	ACTIVE	1/17/1998	2005
NMC788285	21 0020S 0430E 021	SE	MIK 8	ROMARCO NEVADA GOLDFIELD INC	NMC788278	384101	ACTIVE	1/17/1998	2005
NMC788286	21 0020S 0430E 021	SW SE	MIK 9	ROMARCO NEVADA GOLDFIELD INC	NMC788278	384101	ACTIVE	1/17/1998	2005
NMC788287	21 0020S 0430E 021	SW SE	MIK 10	ROMARCO NEVADA GOLDFIELD INC	NMC788278	384101	ACTIVE	1/17/1998	2005
NMC788288	21 0020S 0430E 021	SE	MIK 11	ROMARCO NEVADA GOLDFIELD INC	NMC788278	384101	ACTIVE	1/17/1998	2005
NMC788289	21 0020S 0430E 021	SE	MIK 12	ROMARCO NEVADA GOLDFIELD INC	NMC788278	384101	ACTIVE	1/17/1998	2005
NMC788290	21 0020S 0430E 021	SE	MIK 13	ROMARCO NEVADA GOLDFIELD INC	NMC788278	384101	ACTIVE	1/17/1998	2005
NMC788291	21 0020S 0430E 021	SE	MIK 14	ROMARCO NEVADA GOLDFIELD INC	NMC788278	384101	ACTIVE	1/17/1998	2005
NMC788294	21 0020S 0430E 021	NW SW	MIK 17	ROMARCO NEVADA GOLDFIELD INC	NMC788278	384101	ACTIVE	1/17/1998	2005
NMC788296	21 0020S 0430E 021	SW	MIK 19	ROMARCO NEVADA GOLDFIELD INC	NMC788278	384101	ACTIVE	1/17/1998	2005
NMC788288	21 0020S 0430E 022	SW	MIK 11	ROMARCO NEVADA GOLDFIELD INC	NMC788278	384101	ACTIVE	1/17/1998	2005

NMC788289	21 0020S 0430E 022	SW	MIK 12	ROMARCO NEVADA GOLDFIELD INC	NMC788278	384101	ACTIVE	1/17/1998	2005
NMC788290	21 0020S 0430E 022	SW	MIK 13	ROMARCO NEVADA GOLDFIELD INC	NMC788278	384101	ACTIVE	1/17/1998	2005
NMC788291	21 0020S 0430E 022	SW	MIK 14	ROMARCO NEVADA GOLDFIELD INC	NMC788278	384101	ACTIVE	1/17/1998	2005
NMC788291	21 0020S 0430E 027	NW	MIK 14	ROMARCO NEVADA GOLDFIELD INC	NMC788278	384101	ACTIVE	1/17/1998	2005
NMC788287	21 0020S 0430E 028	NE NW	MIK 10	ROMARCO NEVADA GOLDFIELD INC	NMC788278	384101	ACTIVE	1/17/1998	2005
NMC788291	21 0020S 0430E 028	NE	MIK 14	ROMARCO NEVADA GOLDFIELD INC	NMC788278	384101	ACTIVE	1/17/1998	2005
NMC788296	21 0020S 0430E 028	NW	MIK 19	ROMARCO NEVADA GOLDFIELD INC	NMC788278	384101	ACTIVE	1/17/1998	2005
NMC789883	21 0020S 0430E 027	NW	MIK 44	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/4/1998	2005
NMC789885	21 0020S 0430E 027	NW	MIK 46	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/4/1998	2005
NMC789881	21 0020S 0430E 028	SW SE	MIK 42	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/4/1998	2005
NMC789882	21 0020S 0430E 028	NE	MIK 43	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/4/1998	2005
NMC789883	21 0020S 0430E 028	NE	MIK 44	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/4/1998	2005
NMC789884	21 0020S 0430E 028	NE	MIK 45	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/4/1998	2005
NMC789885	21 0020S 0430E 028	NE	MIK 46	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/4/1998	2005
NMC789886	21 0020S 0430E 028	NE	MIK 47	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/4/1998	2005
NMC789888	21 0020S 0430E 028	NE	MIK 49	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/4/1998	2005
NMC789890	21 0020S 0430E 028	NE SE	MIK 51	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/4/1998	2005
NMC789892	21 0020S 0430E 028	SE	MIK 53	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/4/1998	2005
NMC789894	21 0020S 0430E 028	SE	MIK 55	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/4/1998	2005
NMC789896	21 0020S 0430E 028	SE	MIK 57	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/4/1998	2005
NMC789898	21 0020S 0430E 028	SE	MIK 59	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/4/1998	2005
NMC789864	21 0020S 0430E 028	NW	MIK 25	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/5/1998	2005
NMC789865	21 0020S 0430E 028	NE NW	MIK 26	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/5/1998	2005
NMC789866	21 0020S 0430E 028	NW	MIK 27	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/5/1998	2005
NMC789867	21 0020S 0430E 028	NE NW	MIK 28	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/5/1998	2005
NMC789868	21 0020S 0430E 028	NW	MIK 29	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/5/1998	2005
NMC789869	21 0020S 0430E 028	NE NW	MIK 30	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/5/1998	2005
NMC789870	21 0020S 0430E 028	NW	MIK 31	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/5/1998	2005
NMC789871	21 0020S 0430E 028	NE NW	MIK 32	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/5/1998	2005
NMC789872	21 0020S 0430E 028	NW SW	MIK 33	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/5/1998	2005
NMC789873	21 0020S 0430E 028	NE NW SW SE	MIK 34	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/5/1998	2005
NMC789874	21 0020S 0430E 028	SW	MIK 35	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/5/1998	2005
NMC789875	21 0020S 0430E 028	SW SE	MIK 36	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/5/1998	2005
NMC789876	21 0020S 0430E 028	SW	MIK 37	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/5/1998	2005
NMC789877	21 0020S 0430E 028	SW SE	MIK 38	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/5/1998	2005
NMC789878	21 0020S 0430E 028	SW	MIK 39	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/5/1998	2005
NMC789879	21 0020S 0430E 028	SW SE	MIK 40	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/5/1998	2005
NMC789880	21 0020S 0430E 028	SW	MIK 41	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/5/1998	2005
NMC789864	21 0020S 0430E 029	NE	MIK 25	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/5/1998	2005
NMC789866	21 0020S 0430E 029	NE	MIK 27	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/5/1998	2005
NMC789868	21 0020S 0430E 029	NE	MIK 29	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/5/1998	2005
NMC789870	21 0020S 0430E 029	NE	MIK 31	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/5/1998	2005
NMC789872	21 0020S 0430E 029	NE SE	MIK 33	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/5/1998	2005
NMC789874	21 0020S 0430E 029	SE	MIK 35	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/5/1998	2005
NMC789876	21 0020S 0430E 029	SE	MIK 37	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/5/1998	2005
NMC789878	21 0020S 0430E 029	SE	MIK 39	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/5/1998	2005
NMC789880	21 0020S 0430E 029	SE	MIK 41	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/5/1998	2005
NMC789902	21 0020S 0430E 020	SW SE	MIK 63	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/6/1998	2005
NMC789903	21 0020S 0430E 020	SE	MIK 64	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/6/1998	2005
NMC789904	21 0020S 0430E 020	SW SE	MIK 65	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/6/1998	2005

NMC789905	21 0020S 0430E 020	SE	MIK 66	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/6/1998	2005
NMC789932	21 0020S 0430E 027	NE NW	MIK 93	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/6/1998	2005
NMC789904	21 0020S 0430E 029	NE NW	MIK 65	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/6/1998	2005
NMC789905	21 0020S 0430E 029	NE	MIK 66	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/6/1998	2005
NMC789906	21 0020S 0430E 029	NE NW	MIK 67	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/6/1998	2005
NMC789907	21 0020S 0430E 029	NE	MIK 68	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/6/1998	2005
NMC789908	21 0020S 0430E 029	NE NW	MIK 69	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/6/1998	2005
NMC789909	21 0020S 0430E 029	NE	MIK 70	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/6/1998	2005
NMC789910	21 0020S 0430E 029	NE NW	MIK 71	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/6/1998	2005
NMC789911	21 0020S 0430E 029	NE	MIK 72	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/6/1998	2005
NMC789912	21 0020S 0430E 029	NE NW	MIK 73	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/6/1998	2005
NMC789913	21 0020S 0430E 029	NE	MIK 74	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/6/1998	2005
NMC789914	21 0020S 0430E 029	NE NW SW SE	MIK 75	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/6/1998	2005
NMC789915	21 0020S 0430E 029	NE SE	MIK 76	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/6/1998	2005
NMC789916	21 0020S 0430E 029	SW SE	MIK 77	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/6/1998	2005
NMC789917	21 0020S 0430E 029	SE	MIK 78	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/6/1998	2005
NMC789918	21 0020S 0430E 029	SW SE	MIK 79	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/6/1998	2005
NMC789919	21 0020S 0430E 029	SE	MIK 80	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/6/1998	2005
NMC789920	21 0020S 0430E 029	SW SE	MIK 81	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/6/1998	2005
NMC789921	21 0020S 0430E 029	SE	MIK 82	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/6/1998	2005
NMC789922	21 0020S 0430E 029	SW SE	MIK 83	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/6/1998	2005
NMC789923	21 0020S 0430E 029	SE	MIK 84	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/6/1998	2005
NMC789922	21 0020S 0430E 032	NE NW	MIK 83	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/6/1998	2005
NMC789923	21 0020S 0430E 032	NE	MIK 84	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/6/1998	2005
NMC789924	21 0020S 0430E 032	NE NW	MIK 85	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/6/1998	2005
NMC789925	21 0020S 0430E 032	NE	MIK 86	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/6/1998	2005
NMC789926	21 0020S 0430E 032	NE NW	MIK 87	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/6/1998	2005
NMC789927	21 0020S 0430E 032	NE	MIK 88	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/6/1998	2005
NMC789928	21 0020S 0430E 032	NE NW	MIK 89	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/6/1998	2005
NMC789929	21 0020S 0430E 032	NE	MIK 90	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/6/1998	2005
NMC789934	21 0020S 0430E 027	NE NW	MIK 95	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/7/1998	2005
NMC789936	21 0020S 0430E 027	NE NW	MIK 97	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/7/1998	2005
NMC789938	21 0020S 0430E 027	NE NW	MIK 99	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/7/1998	2005
NMC789940	21 0020S 0430E 027	NE NW SW SE	MIK 101	ROMARCO NEVADA GOLDFIELD INC	NMC789864	384101	ACTIVE	3/7/1998	2005
NMC791002	21 0030S 0430E 001	NE NW	DIX 1	ROMARCO NEVADA GOLDFIELD INC	NMC791002	384101	ACTIVE	4/17/1998	2005
NMC791003	21 0030S 0430E 001	NE	DIX 2	ROMARCO NEVADA GOLDFIELD INC	NMC791002	384101	ACTIVE	4/17/1998	2005
NMC791004	21 0030S 0430E 001	NE NW SW SE	DIX 3	ROMARCO NEVADA GOLDFIELD INC	NMC791002	384101	ACTIVE	4/17/1998	2005
NMC791005	21 0030S 0430E 001	NE SE	DIX 4	ROMARCO NEVADA GOLDFIELD INC	NMC791002	384101	ACTIVE	4/17/1998	2005
NMC791006	21 0030S 0430E 001	SW SE	DIX 5	ROMARCO NEVADA GOLDFIELD INC	NMC791002	384101	ACTIVE	4/17/1998	2005
NMC791007	21 0030S 0430E 001	SE	DIX 6	ROMARCO NEVADA GOLDFIELD INC	NMC791002	384101	ACTIVE	4/17/1998	2005
NMC791008	21 0030S 0430E 001	SW SE	DIX 7	ROMARCO NEVADA GOLDFIELD INC	NMC791002	384101	ACTIVE	4/17/1998	2005
NMC791009	21 0030S 0430E 001	SE	DIX 8	ROMARCO NEVADA GOLDFIELD INC	NMC791002	384101	ACTIVE	4/17/1998	2005
NMC791010	21 0030S 0430E 001	SW SE	DIX 9	ROMARCO NEVADA GOLDFIELD INC	NMC791002	384101	ACTIVE	4/17/1998	2005
NMC791011	21 0030S 0430E 001	SE	DIX 10	ROMARCO NEVADA GOLDFIELD INC	NMC791002	384101	ACTIVE	4/17/1998	2005
NMC791012	21 0030S 0430E 001	SW SE	DIX 11	ROMARCO NEVADA GOLDFIELD INC	NMC791002	384101	ACTIVE	4/17/1998	2005
NMC791013	21 0030S 0430E 001	SE	DIX 12	ROMARCO NEVADA GOLDFIELD INC	NMC791002	384101	ACTIVE	4/17/1998	2005
NMC791019	21 0030S 0430E 001	NW	DIX 18	ROMARCO NEVADA GOLDFIELD INC	NMC791002	384101	ACTIVE	4/17/1998	2005
NMC791020	21 0030S 0430E 001	NW SW	DIX 19	ROMARCO NEVADA GOLDFIELD INC	NMC791002	384101	ACTIVE	4/17/1998	2005
NMC791021	21 0030S 0430E 001	SW	DIX 20	ROMARCO NEVADA GOLDFIELD INC	NMC791002	384101	ACTIVE	4/17/1998	2005
NMC791012	21 0030S 0430E 012	NE NW	DIX 11	ROMARCO NEVADA GOLDFIELD INC	NMC791002	384101	ACTIVE	4/17/1998	2005

NMC791013	21 0030S 0430E 012	NE	DIX 12	ROMARCO NEVADA GOLDFIELD INC	NMC791002	384101	ACTIVE	4/17/1998	2005
NMC791014	21 0030S 0430E 012	NE	DIX 13	ROMARCO NEVADA GOLDFIELD INC	NMC791002	384101	ACTIVE	4/17/1998	2005
NMC791015	21 0030S 0430E 012	NE	DIX 14	ROMARCO NEVADA GOLDFIELD INC	NMC791002	384101	ACTIVE	4/17/1998	2005
NMC791016	21 0030S 0430E 012	NE	DIX 15	ROMARCO NEVADA GOLDFIELD INC	NMC791002	384101	ACTIVE	4/17/1998	2005
NMC791017	21 0030S 0430E 012	NE	DIX 16	ROMARCO NEVADA GOLDFIELD INC	NMC791002	384101	ACTIVE	4/17/1998	2005
NMC791018	21 0030S 0430E 012	NE SE	DIX 17	ROMARCO NEVADA GOLDFIELD INC	NMC791002	384101	ACTIVE	4/17/1998	2005
NMC790989	21 0020S 0430E 022	SW	MIK 113	ROMARCO NEVADA GOLDFIELD INC	NMC790979	384101	ACTIVE	5/22/1998	2005
NMC790990	21 0020S 0430E 022	SW	MIK 114	ROMARCO NEVADA GOLDFIELD INC	NMC790979	384101	ACTIVE	5/22/1998	2005
NMC790991	21 0020S 0430E 022	SW	MIK 115	ROMARCO NEVADA GOLDFIELD INC	NMC790979	384101	ACTIVE	5/22/1998	2005
NMC790993	21 0020S 0430E 022	SW	MIK 117	ROMARCO NEVADA GOLDFIELD INC	NMC790979	384101	ACTIVE	5/22/1998	2005
NMC791000	21 0020S 0430E 022	SW SE	MIK 124	ROMARCO NEVADA GOLDFIELD INC	NMC790979	384101	ACTIVE	5/22/1998	2005
NMC790979	21 0020S 0430E 027	SW SE	MIK 103	ROMARCO NEVADA GOLDFIELD INC	NMC790979	384101	ACTIVE	5/22/1998	2005
NMC790980	21 0020S 0430E 027	SE	MIK 104	ROMARCO NEVADA GOLDFIELD INC	NMC790979	384101	ACTIVE	5/22/1998	2005
NMC790981	21 0020S 0430E 027	SW SE	MIK 105	ROMARCO NEVADA GOLDFIELD INC	NMC790979	384101	ACTIVE	5/22/1998	2005
NMC790982	21 0020S 0430E 027	SE	MIK 106	ROMARCO NEVADA GOLDFIELD INC	NMC790979	384101	ACTIVE	5/22/1998	2005
NMC790983	21 0020S 0430E 027	SW SE	MIK 107	ROMARCO NEVADA GOLDFIELD INC	NMC790979	384101	ACTIVE	5/22/1998	2005
NMC790984	21 0020S 0430E 027	SE	MIK 108	ROMARCO NEVADA GOLDFIELD INC	NMC790979	384101	ACTIVE	5/22/1998	2005
NMC790985	21 0020S 0430E 027	SW SE	MIK 109	ROMARCO NEVADA GOLDFIELD INC	NMC790979	384101	ACTIVE	5/22/1998	2005
NMC790986	21 0020S 0430E 027	SE	MIK 110	ROMARCO NEVADA GOLDFIELD INC	NMC790979	384101	ACTIVE	5/22/1998	2005
NMC790992	21 0020S 0430E 027	NW	MIK 116	ROMARCO NEVADA GOLDFIELD INC	NMC790979	384101	ACTIVE	5/22/1998	2005
NMC790994	21 0020S 0430E 027	NW	MIK 118	ROMARCO NEVADA GOLDFIELD INC	NMC790979	384101	ACTIVE	5/22/1998	2005
NMC790985	21 0020S 0430E 034	NE NW	MIK 109	ROMARCO NEVADA GOLDFIELD INC	NMC790979	384101	ACTIVE	5/22/1998	2005
NMC790986	21 0020S 0430E 034	NE	MIK 110	ROMARCO NEVADA GOLDFIELD INC	NMC790979	384101	ACTIVE	5/22/1998	2005
NMC790988	21 0020S 0430E 034	NE	MIK 112	ROMARCO NEVADA GOLDFIELD INC	NMC790979	384101	ACTIVE	5/22/1998	2005
NMC792472	21 0030S 0430E 003	SW	POINTER 3	NEVADA GOLD & CASINO	NMC792471	384101	ACTIVE	7/30/1998	2005
NMC792473	21 0030S 0430E 003	SW	PEERLESS EXT	NEVADA GOLD & CASINO	NMC792471	384101	ACTIVE	7/30/1998	2005
NMC792472	21 0030S 0430E 004	SE	POINTER 3	NEVADA GOLD & CASINO	NMC792471	384101	ACTIVE	7/30/1998	2005
NMC792471	21 0030S 0430E 010	NE NW	CAT 8	NEVADA GOLD & CASINO	NMC792471	384101	ACTIVE	7/30/1998	2005
NMC793447	21 0020S 0430E 034	SW	GFR 1	NV GOLD AND CASINO	NMC793444	384101	ACTIVE	9/2/1998	2005
NMC793448	21 0020S 0430E 034	SW SE	GFR 2	NV GOLD AND CASINO	NMC793444	384101	ACTIVE	9/2/1998	2005
NMC793449	21 0020S 0430E 034	SE	GFR 3	NV GOLD AND CASINO	NMC793444	384101	ACTIVE	9/2/1998	2005
NMC793450	21 0020S 0430E 034	SE	GFR 4	NV GOLD AND CASINO	NMC793444	384101	ACTIVE	9/2/1998	2005
NMC793451	21 0020S 0430E 034	SW	GFR 5	NV GOLD AND CASINO	NMC793444	384101	ACTIVE	9/2/1998	2005
NMC793452	21 0020S 0430E 034	SW SE	GFR 6	NV GOLD AND CASINO	NMC793444	384101	ACTIVE	9/2/1998	2005
NMC793453	21 0020S 0430E 034	SE	GFR 7	NV GOLD AND CASINO	NMC793444	384101	ACTIVE	9/2/1998	2005
NMC793454	21 0020S 0430E 034	SE	GFR 8	NV GOLD AND CASINO	NMC793444	384101	ACTIVE	9/2/1998	2005
NMC793455	21 0020S 0430E 034	SW	GFR 9	NV GOLD AND CASINO	NMC793444	384101	ACTIVE	9/2/1998	2005
NMC793456	21 0020S 0430E 034	SW SE	GFR 10	NV GOLD AND CASINO	NMC793444	384101	ACTIVE	9/2/1998	2005
NMC793457	21 0020S 0430E 034	SE	GFR 11	NV GOLD AND CASINO	NMC793444	384101	ACTIVE	9/2/1998	2005
NMC793458	21 0020S 0430E 034	SE	GFR 13	NV GOLD AND CASINO	NMC793444	384101	ACTIVE	9/2/1998	2005
NMC793459	21 0020S 0430E 034	SW SE	GFR 14	NV GOLD AND CASINO	NMC793444	384101	ACTIVE	9/2/1998	2005
NMC793460	21 0020S 0430E 034	SE	GFR 15	NV GOLD AND CASINO	NMC793444	384101	ACTIVE	9/2/1998	2005
NMC793461	21 0020S 0430E 034	SE	GFR 16	NV GOLD AND CASINO	NMC793444	384101	ACTIVE	9/2/1998	2005
NMC793462	21 0020S 0430E 034	SW SE	GFR 17	NV GOLD AND CASINO	NMC793444	384101	ACTIVE	9/2/1998	2005
NMC793463	21 0020S 0430E 034	SE	GFR 18	NV GOLD AND CASINO	NMC793444	384101	ACTIVE	9/2/1998	2005
NMC793464	21 0020S 0430E 034	SE	GFR 19	NV GOLD AND CASINO	NMC793444	384101	ACTIVE	9/2/1998	2005
NMC793450	21 0020S 0430E 035	SW	GFR 4	NV GOLD AND CASINO	NMC793444	384101	ACTIVE	9/2/1998	2005
NMC793454	21 0020S 0430E 035	SW	GFR 8	NV GOLD AND CASINO	NMC793444	384101	ACTIVE	9/2/1998	2005
NMC793458	21 0020S 0430E 035	SW	GFR 13	NV GOLD AND CASINO	NMC793444	384101	ACTIVE	9/2/1998	2005
NMC793461	21 0020S 0430E 035	SW	GFR 16	NV GOLD AND CASINO	NMC793444	384101	ACTIVE	9/2/1998	2005

NMC793464	21 0020S 0430E 035	SW	GFR 19	NV GOLD AND CASINO	NMC793444	384101	ACTIVE	9/2/1998	2005
NMC793464	21 0030S 0430E 002	NW	GFR 19	NV GOLD AND CASINO	NMC793444	384101	ACTIVE	9/2/1998	2005
NMC793466	21 0030S 0430E 002	NW	GFR 23	NV GOLD AND CASINO	NMC793444	384101	ACTIVE	9/2/1998	2005
NMC793468	21 0030S 0430E 002	NW	GFR 27	NV GOLD AND CASINO	NMC793444	384101	ACTIVE	9/2/1998	2005
NMC793462	21 0030S 0430E 003	NE NW	GFR 17	NV GOLD AND CASINO	NMC793444	384101	ACTIVE	9/2/1998	2005
NMC793463	21 0030S 0430E 003	NE	GFR 18	NV GOLD AND CASINO	NMC793444	384101	ACTIVE	9/2/1998	2005
NMC793464	21 0030S 0430E 003	NE	GFR 19	NV GOLD AND CASINO	NMC793444	384101	ACTIVE	9/2/1998	2005
NMC793465	21 0030S 0430E 003	NE	GFR 22	NV GOLD AND CASINO	NMC793444	384101	ACTIVE	9/2/1998	2005
NMC793466	21 0030S 0430E 003	NE	GFR 23	NV GOLD AND CASINO	NMC793444	384101	ACTIVE	9/2/1998	2005
NMC793467	21 0030S 0430E 003	NE	GFR 26	NV GOLD AND CASINO	NMC793444	384101	ACTIVE	9/2/1998	2005
NMC793468	21 0030S 0430E 003	NE	GFR 27	NV GOLD AND CASINO	NMC793444	384101	ACTIVE	9/2/1998	2005
NMC793483	21 0020S 0430E 034	NE	MIK 139	ROMARCO NEVADA GOLDFIELD INC	NMC793469	384101	ACTIVE	9/3/1998	2005
NMC793484	21 0020S 0430E 034	NW	MIK 140	ROMARCO NEVADA GOLDFIELD INC	NMC793469	384101	ACTIVE	9/3/1998	2005
NMC793486	21 0020S 0430E 034	NE	MIK 142	ROMARCO NEVADA GOLDFIELD INC	NMC793469	384101	ACTIVE	9/3/1998	2005
NMC793488	21 0020S 0430E 034	NW	MIK 144	ROMARCO NEVADA GOLDFIELD INC	NMC793469	384101	ACTIVE	9/3/1998	2005
NMC793489	21 0020S 0430E 034	NE NW	MIK 145	ROMARCO NEVADA GOLDFIELD INC	NMC793469	384101	ACTIVE	9/3/1998	2005
NMC793490	21 0020S 0430E 034	NE	MIK 146	ROMARCO NEVADA GOLDFIELD INC	NMC793469	384101	ACTIVE	9/3/1998	2005
NMC793492	21 0020S 0430E 034	NE NW SW SE	MIK 148	ROMARCO NEVADA GOLDFIELD INC	NMC793469	384101	ACTIVE	9/3/1998	2005
NMC793493	21 0020S 0430E 034	NE SE	MIK 149	ROMARCO NEVADA GOLDFIELD INC	NMC793469	384101	ACTIVE	9/3/1998	2005
NMC793469	21 0020S 0430E 032	NE	MIK 92	ROMARCO NEVADA GOLDFIELD INC	NMC793469	384101	ACTIVE	9/24/1998	2005
NMC801629	21 0020S 0430E 020	NE	BUFFALO	ROMARCO NEVADA GOLDFIELD INC	NMC801606	384101	ACTIVE	12/15/1998	2005
NMC801630	21 0020S 0430E 020	NE	BULLFROG	ROMARCO NEVADA GOLDFIELD INC	NMC801606	384101	ACTIVE	12/15/1998	2005
NMC801629	21 0020S 0430E 021	NW	BUFFALO	ROMARCO NEVADA GOLDFIELD INC	NMC801606	384101	ACTIVE	12/15/1998	2005
NMC801637	21 0020S 0430E 029	NW	MIK-154	ROMARCO NEVADA GOLDFIELD INC	NMC801606	384101	ACTIVE	12/15/1998	2005
NMC801638	21 0020S 0430E 020	NW	VERNAL-DAISY	ROMARCO NEVADA GOLDFIELD INC	NMC801606	384101	ACTIVE	12/16/1998	2005
NMC801632	21 0020S 0430E 029	SW	LITTLE PEDRO #1	ROMARCO NEVADA GOLDFIELD INC	NMC801606	384101	ACTIVE	12/16/1998	2005
NMC801633	21 0020S 0430E 029	SW	LITTLE PEDRO #2	ROMARCO NEVADA GOLDFIELD INC	NMC801606	384101	ACTIVE	12/16/1998	2005
NMC801634	21 0020S 0430E 029	SW	LITTLE PEDRO #3	ROMARCO NEVADA GOLDFIELD INC	NMC801606	384101	ACTIVE	12/16/1998	2005
NMC801635	21 0020S 0430E 029	SW	LITTLE PEDRO #4	ROMARCO NEVADA GOLDFIELD INC	NMC801606	384101	ACTIVE	12/16/1998	2005
NMC801602	21 0020S 0430E 033	NW	PEERLESS NO 3	GOLDFIELD RESOURCES INC	NMC801590	384101	ACTIVE	12/16/1998	2005
NMC801597	21 0020S 0430E 028	SW SE	MIK NO 153	GOLDFIELD RESOURCES INC	NMC801590	384101	ACTIVE	1/11/1999	2005
NMC801590	21 0020S 0430E 032	SE	LADY EUGENIA NO 1	GOLDFIELD RESOURCES INC	NMC801590	384101	ACTIVE	1/11/1999	2005
NMC801591	21 0020S 0430E 032	SE	LADY EUGENIA NO 2	GOLDFIELD RESOURCES INC	NMC801590	384101	ACTIVE	1/11/1999	2005
NMC801592	21 0020S 0430E 032	SE	LADY EUGENIA NO 3	GOLDFIELD RESOURCES INC	NMC801590	384101	ACTIVE	1/11/1999	2005
NMC801593	21 0020S 0430E 032	SW SE	PIPE STEAM NO 1	GOLDFIELD RESOURCES INC	NMC801590	384101	ACTIVE	1/11/1999	2005
NMC801594	21 0020S 0430E 032	SW SE	PIPE STEAM NO 2	GOLDFIELD RESOURCES INC	NMC801590	384101	ACTIVE	1/11/1999	2005
NMC801595	21 0020S 0430E 032	SW SE	PIPE STEAM NO 3	GOLDFIELD RESOURCES INC	NMC801590	384101	ACTIVE	1/11/1999	2005
NMC801596	21 0020S 0430E 032	SW SE	PIPE STEAM NO 4	GOLDFIELD RESOURCES INC	NMC801590	384101	ACTIVE	1/11/1999	2005
NMC801598	21 0020S 0430E 032	NE	MIK 155	GOLDFIELD RESOURCES INC	NMC801590	384101	ACTIVE	1/11/1999	2005
NMC801591	21 0020S 0430E 033	SW	LADY EUGENIA NO 2	GOLDFIELD RESOURCES INC	NMC801590	384101	ACTIVE	1/11/1999	2005
NMC801592	21 0020S 0430E 033	SW	LADY EUGENIA NO 3	GOLDFIELD RESOURCES INC	NMC801590	384101	ACTIVE	1/11/1999	2005
NMC801598	21 0020S 0430E 033	NW	MIK 155	GOLDFIELD RESOURCES INC	NMC801590	384101	ACTIVE	1/11/1999	2005
NMC801605	21 0030S 0430E 002	NE SE	BOB-1113	GOLDFIELD RESOURCES INC	NMC801590	384101	ACTIVE	1/11/1999	2005
NMC801599	21 0030S 0430E 004	SW	HUMBOLDT	GOLDFIELD RESOURCES INC	NMC801590	384101	ACTIVE	1/11/1999	2005
NMC801601	21 0030S 0430E 004	NW	SILVER BELL	GOLDFIELD RESOURCES INC	NMC801590	384101	ACTIVE	1/11/1999	2005
NMC801603	21 0030S 0430E 004	SW	KNIGHT	GOLDFIELD RESOURCES INC	NMC801590	384101	ACTIVE	1/11/1999	2005
NMC801604	21 0030S 0430E 010	NW	WICKIUP	GOLDFIELD RESOURCES INC	NMC801590	384101	ACTIVE	1/11/1999	2005
NMC814841	21 0020S 0430E 020	SE	Y2K 1	ROMARCO NEVADA INC	NMC814841	384101	ACTIVE	1/19/2000	2005
NMC814842	21 0020S 0430E 020	SE	Y2K 2	ROMARCO NEVADA INC	NMC814841	384101	ACTIVE	1/19/2000	2005
NMC814843	21 0020S 0430E 020	SE	Y2K 3	ROMARCO NEVADA INC	NMC814841	384101	ACTIVE	1/19/2000	2005

NMC814844	21 0020S 0430E 020	SE	Y2K 4	ROMARCO NEVADA INC	NMC814841	384101	ACTIVE	1/19/2000	2005
NMC814841	21 0020S 0430E 021	SW	Y2K 1	ROMARCO NEVADA INC	NMC814841	384101	ACTIVE	1/19/2000	2005
NMC814842	21 0020S 0430E 021	SW	Y2K 2	ROMARCO NEVADA INC	NMC814841	384101	ACTIVE	1/19/2000	2005
NMC814843	21 0020S 0430E 021	SW	Y2K 3	ROMARCO NEVADA INC	NMC814841	384101	ACTIVE	1/19/2000	2005
NMC814844	21 0020S 0430E 021	SW	Y2K 4	ROMARCO NEVADA INC	NMC814841	384101	ACTIVE	1/19/2000	2005
NMC814844	21 0020S 0430E 028	NW	Y2K 4	ROMARCO NEVADA INC	NMC814841	384101	ACTIVE	1/19/2000	2005
NMC814844	21 0020S 0430E 029	NE	Y2K 4	ROMARCO NEVADA INC	NMC814841	384101	ACTIVE	1/19/2000	2005
NMC823739	21 0030N 0490E 003	NE NW SW SE	FOX 1	CRAIG GLEN R	NMC823739	384101	ACTIVE	3/21/2001	2005
NMC823740	21 0030N 0490E 003	NE NW SW SE	FOX 2	CRAIG GLEN R	NMC823739	384101	ACTIVE	3/21/2001	2005
NMC831092	21 0020N 0480E 020	SW	SUNRISE 52	BAUGHMAN GERALD W	NMC831053	384101	ACTIVE	8/20/2002	2005
NMC831094	21 0020N 0480E 020	SE	SUNRISE 54	BAUGHMAN GERALD W	NMC831053	384101	ACTIVE	8/20/2002	2005
NMC831096	21 0020N 0480E 020	SE	SUNRISE 56	BAUGHMAN GERALD W	NMC831053	384101	ACTIVE	8/20/2002	2005
NMC831098	21 0020N 0480E 020	SE	SUNRISE 58	BAUGHMAN GERALD W	NMC831053	384101	ACTIVE	8/20/2002	2005
NMC831100	21 0020N 0480E 020	NW SW	SUNRISE 60	BAUGHMAN GERALD W	NMC831053	384101	ACTIVE	8/20/2002	2005
NMC831102	21 0020N 0480E 020	NE	SUNRISE 62	BAUGHMAN GERALD W	NMC831053	384101	ACTIVE	8/20/2002	2005
NMC831104	21 0020N 0480E 020	NE	SUNRISE 64	BAUGHMAN GERALD W	NMC831053	384101	ACTIVE	8/20/2002	2005
NMC831106	21 0020N 0480E 020	NE	SUNRISE 66	BAUGHMAN GERALD W	NMC831053	384101	ACTIVE	8/20/2002	2005
NMC831117	21 0020N 0480E 020	NE	SUNRISE 132	BAUGHMAN GERALD W	NMC831053	384101	ACTIVE	8/20/2002	2005
NMC831118	21 0020N 0480E 020	NE	SUNRISE 133	BAUGHMAN GERALD W	NMC831053	384101	ACTIVE	8/20/2002	2005
NMC831073	21 0020N 0480E 021	SE	SUNRISE 27	BAUGHMAN GERALD W	NMC831053	384101	ACTIVE	8/20/2002	2005
NMC831074	21 0020N 0480E 021	SW SE	SUNRISE 28	BAUGHMAN GERALD W	NMC831053	384101	ACTIVE	8/20/2002	2005
NMC831075	21 0020N 0480E 021	SE	SUNRISE 29	BAUGHMAN GERALD W	NMC831053	384101	ACTIVE	8/20/2002	2005
NMC831076	21 0020N 0480E 021	SW SE	SUNRISE 30	BAUGHMAN GERALD W	NMC831053	384101	ACTIVE	8/20/2002	2005
NMC831077	21 0020N 0480E 021	SE	SUNRISE 31	BAUGHMAN GERALD W	NMC831053	384101	ACTIVE	8/20/2002	2005
NMC831078	21 0020N 0480E 021	SW SE	SUNRISE 32	BAUGHMAN GERALD W	NMC831053	384101	ACTIVE	8/20/2002	2005
NMC831079	21 0020N 0480E 021	SE	SUNRISE 33	BAUGHMAN GERALD W	NMC831053	384101	ACTIVE	8/20/2002	2005
NMC831080	21 0020N 0480E 021	SW SE	SUNRISE 34	BAUGHMAN GERALD W	NMC831053	384101	ACTIVE	8/20/2002	2005
NMC831081	21 0020N 0480E 021	NE SE	SUNRISE 35	BAUGHMAN GERALD W	NMC831053	384101	ACTIVE	8/20/2002	2005
NMC831082	21 0020N 0480E 021	NE NW SW SE	SUNRISE 36	BAUGHMAN GERALD W	NMC831053	384101	ACTIVE	8/20/2002	2005
NMC831083	21 0020N 0480E 021	NE	SUNRISE 37	BAUGHMAN GERALD W	NMC831053	384101	ACTIVE	8/20/2002	2005
NMC831084	21 0020N 0480E 021	NE NW	SUNRISE 38	BAUGHMAN GERALD W	NMC831053	384101	ACTIVE	8/20/2002	2005
NMC831085	21 0020N 0480E 021	NE	SUNRISE 39	BAUGHMAN GERALD W	NMC831053	384101	ACTIVE	8/20/2002	2005
NMC831086	21 0020N 0480E 021	NE NW	SUNRISE 40	BAUGHMAN GERALD W	NMC831053	384101	ACTIVE	8/20/2002	2005
NMC831087	21 0020N 0480E 021	NE	SUNRISE 41	BAUGHMAN GERALD W	NMC831053	384101	ACTIVE	8/20/2002	2005
NMC831088	21 0020N 0480E 021	NE NW	SUNRISE 42	BAUGHMAN GERALD W	NMC831053	384101	ACTIVE	8/20/2002	2005
NMC831091	21 0020N 0480E 021	SE	SUNRISE 51	BAUGHMAN GERALD W	NMC831053	384101	ACTIVE	8/20/2002	2005
NMC831092	21 0020N 0480E 021	SE	SUNRISE 52	BAUGHMAN GERALD W	NMC831053	384101	ACTIVE	8/20/2002	2005
NMC831093	21 0020N 0480E 021	SW	SUNRISE 53	BAUGHMAN GERALD W	NMC831053	384101	ACTIVE	8/20/2002	2005
NMC831094	21 0020N 0480E 021	SW	SUNRISE 54	BAUGHMAN GERALD W	NMC831053	384101	ACTIVE	8/20/2002	2005
NMC831095	21 0020N 0480E 021	SW	SUNRISE 55	BAUGHMAN GERALD W	NMC831053	384101	ACTIVE	8/20/2002	2005
NMC831096	21 0020N 0480E 021	SW	SUNRISE 56	BAUGHMAN GERALD W	NMC831053	384101	ACTIVE	8/20/2002	2005
NMC831097	21 0020N 0480E 021	SW	SUNRISE 57	BAUGHMAN GERALD W	NMC831053	384101	ACTIVE	8/20/2002	2005
NMC831098	21 0020N 0480E 021	SW	SUNRISE 58	BAUGHMAN GERALD W	NMC831053	384101	ACTIVE	8/20/2002	2005
NMC831099	21 0020N 0480E 021	NE SE	SUNRISE 59	BAUGHMAN GERALD W	NMC831053	384101	ACTIVE	8/20/2002	2005
NMC831100	21 0020N 0480E 021	NE SE	SUNRISE 60	BAUGHMAN GERALD W	NMC831053	384101	ACTIVE	8/20/2002	2005
NMC831101	21 0020N 0480E 021	NW	SUNRISE 61	BAUGHMAN GERALD W	NMC831053	384101	ACTIVE	8/20/2002	2005
NMC831102	21 0020N 0480E 021	NW	SUNRISE 62	BAUGHMAN GERALD W	NMC831053	384101	ACTIVE	8/20/2002	2005
NMC831103	21 0020N 0480E 021	NW	SUNRISE 63	BAUGHMAN GERALD W	NMC831053	384101	ACTIVE	8/20/2002	2005
NMC831104	21 0020N 0480E 021	NW	SUNRISE 64	BAUGHMAN GERALD W	NMC831053	384101	ACTIVE	8/20/2002	2005
NMC831105	21 0020N 0480E 021	NW	SUNRISE 65	BAUGHMAN GERALD W	NMC831053	384101	ACTIVE	8/20/2002	2005

NMC831106	21 0020N 0480E 021	NW	SUNRISE 66	BAUGHMAN GERALD W	NMC831053	384101	ACTIVE	8/20/2002	2005
NMC831090	21 0020N 0480E 029	NE	SUNRISE 50	BAUGHMAN-GERALD W	NMC831053	384101	ACTIVE	8/20/2002	2005
NMC831092	21 0020N 0480E 029	NW	SUNRISE 52	BAUGHMAN GERALD W	NMC831053	384101	ACTIVE	8/20/2002	2005
NMC839274	21 0040N 0500E 030	SW	BAB #20	PACIFIC INTERMTN GOLD CORP	NMC839265	384101	ACTIVE	9/29/2002	2005
NMC839276	21 0040N 0500E 030	SW	BAB #22	PACIFIC INTERMTN GOLD CORP	NMC839265	384101	ACTIVE	9/29/2002	2005
NMC839278	21 0040N 0500E 030	NW SW	BAB #24	PACIFIC INTERMTN GOLD CORP	NMC839265	384101	ACTIVE	9/29/2002	2005
NMC839280	21 0040N 0500E 030	NW	BAB #26	PACIFIC INTERMTN GOLD CORP	NMC839265	384101	ACTIVE	9/29/2002	2005
NMC839282	21 0040N 0500E 030	NW	BAB #28	PACIFIC INTERMTN GOLD CORP	NMC839265	384101	ACTIVE	9/29/2002	2005
NMC839265	21 0040N 0492E 025	SW	BAB #1	PACIFIC INTERMTN GOLD CORP	NMC839265	384101	ACTIVE	9/29/2002	2005
NMC839266	21 0040N 0492E 025	SW SE	BAB #2	PACIFIC INTERMTN GOLD CORP	NMC839265	384101	ACTIVE	9/29/2002	2005
NMC839267	21 0040N 0492E 025	NW SW	BAB #3	PACIFIC INTERMTN GOLD CORP	NMC839265	384101	ACTIVE	9/29/2002	2005
NMC839268	21 0040N 0492E 025	NE NW SW SE	BAB #4	PACIFIC INTERMTN GOLD CORP	NMC839265	384101	ACTIVE	9/29/2002	2005
NMC839269	21 0040N 0492E 025	NW	BAB #5	PACIFIC INTERMTN GOLD CORP	NMC839265	384101	ACTIVE	9/29/2002	2005
NMC839270	21 0040N 0492E 025	NE NW	BAB #6	PACIFIC INTERMTN GOLD CORP	NMC839265	384101	ACTIVE	9/29/2002	2005
NMC839271	21 0040N 0492E 025	NW	BAB #7	PACIFIC INTERMTN GOLD CORP	NMC839265	384101	ACTIVE	9/29/2002	2005
NMC839272	21 0040N 0492E 025	NE NW	BAB #8	PACIFIC INTERMTN GOLD CORP	NMC839265	384101	ACTIVE	9/29/2002	2005
NMC839273	21 0040N 0492E 025	SE	BAB #19	PACIFIC INTERMTN GOLD CORP	NMC839265	384101	ACTIVE	9/29/2002	2005
NMC839274	21 0040N 0492E 025	SE	BAB #20	PACIFIC INTERMTN GOLD CORP	NMC839265	384101	ACTIVE	9/29/2002	2005
NMC839275	21 0040N 0492E 025	SE	BAB #21	PACIFIC INTERMTN GOLD CORP	NMC839265	384101	ACTIVE	9/29/2002	2005
NMC839276	21 0040N 0492E 025	SE	BAB #22	PACIFIC INTERMTN GOLD CORP	NMC839265	384101	ACTIVE	9/29/2002	2005
NMC839277	21 0040N 0492E 025	NE SE	BAB #23	PACIFIC INTERMTN GOLD CORP	NMC839265	384101	ACTIVE	9/29/2002	2005
NMC839278	21 0040N 0492E 025	NE SE	BAB #24	PACIFIC INTERMTN GOLD CORP	NMC839265	384101	ACTIVE	9/29/2002	2005
NMC839279	21 0040N 0492E 025	NE	BAB #25	PACIFIC INTERMTN GOLD CORP	NMC839265	384101	ACTIVE	9/29/2002	2005
NMC839280	21 0040N 0492E 025	NE	BAB #26	PACIFIC INTERMTN GOLD CORP	NMC839265	384101	ACTIVE	9/29/2002	2005
NMC839281	21 0040N 0492E 025	NE	BAB #27	PACIFIC INTERMTN GOLD CORP	NMC839265	384101	ACTIVE	9/29/2002	2005
NMC839282	21 0040N 0492E 025	NE	BAB #28	PACIFIC INTERMTN GOLD CORP	NMC839265	384101	ACTIVE	9/29/2002	2005
NMC840317	21 0030N 0490E 002	NW	CM #63	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840318	21 0030N 0490E 002	NW	CM #64	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840319	21 0030N 0490E 002	NW	CM #65	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840320	21 0030N 0490E 002	NW	CM #66	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840340	21 0030N 0490E 002	SW	CM #86	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840341	21 0030N 0490E 002	NW SW	CM #87	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840342	21 0030N 0490E 002	NW SW	CM #88	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840343	21 0030N 0490E 002	NW	CM #89	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840263	21 0030N 0490E 003	NW	CM #7	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840264	21 0030N 0490E 003	NW	CM #8	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840265	21 0030N 0490E 003	NW	CM #9	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840266	21 0030N 0490E 003	NW	CM #10	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840267	21 0030N 0490E 003	NW	CM #11	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840268	21 0030N 0490E 003	NW	CM #12	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840286	21 0030N 0490E 003	SW	CM #30	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840287	21 0030N 0490E 003	NW SW	CM #31	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840288	21 0030N 0490E 003	NW SW	CM #32	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840289	21 0030N 0490E 003	NW SW	CM #33	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840290	21 0030N 0490E 003	NW	CM #34	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840291	21 0030N 0490E 003	NE NW	CM #35	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840292	21 0030N 0490E 003	NE NW	CM #36	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840293	21 0030N 0490E 003	NE NW	CM #37	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840294	21 0030N 0490E 003	NE	CM #38	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840295	21 0030N 0490E 003	NE	CM #39	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005

NMC840310	21 0030N 0490E 003	SW	CM #54	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840311	21 0030N 0490E 003	SW	CM #55	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840312	21 0030N 0490E 003	SW	CM #56	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840313	21 0030N 0490E 003	SW SE	CM #57	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840314	21 0030N 0490E 003	NW SW SE	CM #58	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840315	21 0030N 0490E 003	NE NW SW SE	CM #59	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840316	21 0030N 0490E 003	NE	CM #62	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840317	21 0030N 0490E 003	NE	CM #63	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840318	21 0030N 0490E 003	NE	CM #64	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840319	21 0030N 0490E 003	NE	CM #65	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840334	21 0030N 0490E 003	SW	CM #80	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840335	21 0030N 0490E 003	SW SE	CM #81	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840336	21 0030N 0490E 003	SW SE	CM #82	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840337	21 0030N 0490E 003	SE	CM #83	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840338	21 0030N 0490E 003	SE	CM #84	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840339	21 0030N 0490E 003	SE	CM #85	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840340	21 0030N 0490E 003	NE SE	CM #86	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840341	21 0030N 0490E 003	NE SE	CM #87	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840342	21 0030N 0490E 003	NE	CM #88	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840263	21 0030N 0490E 004	NE	CM #7	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840264	21 0030N 0490E 004	NE	CM #8	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840286	21 0030N 0490E 004	SE	CM #30	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840287	21 0030N 0490E 004	NE SE	CM #31	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840310	21 0030N 0490E 010	NW	CM #54	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840333	21 0030N 0490E 010	NW	CM #79	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840334	21 0030N 0490E 010	NE NW	CM #80	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840335	21 0030N 0490E 010	NE NW	CM #81	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840336	21 0030N 0490E 010	NE	CM #82	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840265	21 0040N 0490E 034	SW	CM #9	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840266	21 0040N 0490E 034	SW	CM #10	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840267	21 0040N 0490E 034	SW	CM #11	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840268	21 0040N 0490E 034	SW SE	CM #12	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840269	21 0040N 0490E 034	SW SE	CM #13	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840270	21 0040N 0490E 034	SW SE	CM #14	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840271	21 0040N 0490E 034	SW SE	CM #15	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840272	21 0040N 0490E 034	NE SE	CM #16	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840293	21 0040N 0490E 034	SW SE	CM #37	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840294	21 0040N 0490E 034	SE	CM #38	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840295	21 0040N 0490E 034	SE	CM #39	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840296	21 0040N 0490E 034	SE	CM #40	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840297	21 0040N 0490E 034	SE	CM #41	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840318	21 0040N 0490E 034	SE	CM #64	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840319	21 0040N 0490E 034	SE	CM #65	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840320	21 0040N 0490E 034	SE	CM #66	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840297	21 0040N 0490E 035	SW	CM #41	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840319	21 0040N 0490E 035	SW	CM #65	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840320	21 0040N 0490E 035	SW	CM #66	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/3/2002	2005
NMC840363	21 0030N 0490E 002	SW	CM #109	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/6/2002	2005
NMC840364	21 0030N 0490E 002	SW	CM #110	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/6/2002	2005
NMC840365	21 0030N 0490E 002	SW	CM #111	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/6/2002	2005

NMC840366	21 0030N 0490E 002	SW	CM #112	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/6/2002	2005
NMC840380	21 0030N 0490E 002	SW	CM #134	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/6/2002	2005
NMC840381	21 0030N 0490E 002	SW	CM #135	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/6/2002	2005
NMC840382	21 0030N 0490E 002	SW	CM #136	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/6/2002	2005
NMC840383	21 0030N 0490E 002	SW SE	CM #137	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/6/2002	2005
NMC840361	21 0030N 0490E 003	SE	CM #107	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/6/2002	2005
NMC840362	21 0030N 0490E 003	SE	CM #108	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/6/2002	2005
NMC840363	21 0030N 0490E 003	SE	CM #109	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/6/2002	2005
NMC840364	21 0030N 0490E 003	SE	CM #110	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/6/2002	2005
NMC840365	21 0030N 0490E 003	SE	CM #111	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/6/2002	2005
NMC840357	21 0030N 0490E 010	NE NW SW SE	CM #103	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/6/2002	2005
NMC840358	21 0030N 0490E 010	NE NW	CM #104	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/6/2002	2005
NMC840359	21 0030N 0490E 010	NE NW	CM #105	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/6/2002	2005
NMC840360	21 0030N 0490E 010	NE	CM #106	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/6/2002	2005
NMC840361	21 0030N 0490E 010	NE	CM #107	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/6/2002	2005
NMC840362	21 0030N 0490E 010	NE	CM #108	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/6/2002	2005
NMC840363	21 0030N 0490E 010	NE	CM #109	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/6/2002	2005
NMC840374	21 0030N 0490E 010	NE SE	CM #128	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/6/2002	2005
NMC840375	21 0030N 0490E 010	NE SE	CM #129	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/6/2002	2005
NMC840376	21 0030N 0490E 010	NE SE	CM #130	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/6/2002	2005
NMC840377	21 0030N 0490E 010	NE SE	CM #131	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/6/2002	2005
NMC840378	21 0030N 0490E 010	NE	CM #132	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/6/2002	2005
NMC840379	21 0030N 0490E 010	NE	CM #133	PACIFIC INTERMTN GOLD CORP	NMC840165	384101	ACTIVE	10/6/2002	2005
NMC845048	21 0020N 0480E 003	NE NW	GS #85	PACIFIC INTERMTN GOLD CORP	NMC844946	384101	ACTIVE	12/27/2002	2005
NMC848312	21 0020S 0430E 029	NW	CLAW	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	3/14/2003	2005
NMC848368	21 0020S 0430E 029	NW SW	PEDRO 5	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	3/14/2003	2005
NMC848369	21 0020S 0430E 029	SW	PEDRO 6	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	3/14/2003	2005
NMC848370	21 0020S 0430E 029	SW	PEDRO 7	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	3/14/2003	2005
NMC848371	21 0020S 0430E 029	SW	PEDRO 8	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	3/14/2003	2005
NMC848321	21 0020S 0430E 032	SW	JACK ASS 1	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	3/14/2003	2005
NMC848322	21 0020S 0430E 032	NW	JOHNSON	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	3/14/2003	2005
NMC848370	21 0020S 0430E 032	NW	PEDRO 7	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	3/14/2003	2005
NMC848380	21 0020S 0430E 032	NE NW	WATER	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	3/14/2003	2005
NMC848374	21 0020S 0430E 035	SE	SIERRA 1	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	3/14/2003	2005
NMC848309	21 0020S 0430E 020	SE	BBE	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	3/15/2003	2005
NMC848311	21 0020S 0430E 020	SW	CHEROKEE	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	3/15/2003	2005
NMC848323	21 0020S 0430E 020	SE	LAST CHANCE 1	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	3/15/2003	2005
NMC848324	21 0020S 0430E 020	SE	LAST CHANCE 2	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	3/15/2003	2005
NMC848424	21 0020S 0430E 021	NE SE	REX	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	3/15/2003	2005
NMC848311	21 0020S 0430E 029	NW	CHEROKEE	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	3/15/2003	2005
NMC848314	21 0020S 0430E 029	NW	DIP	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	3/16/2003	2005
NMC848538	21 0020N 0480E 016	SE	SUNRISE 45	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848539	21 0020N 0480E 016	SE	SUNRISE 46	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848540	21 0020N 0480E 016	SE	SUNRISE 47	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848541	21 0020N 0480E 016	SW SE	SUNRISE 48	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848544	21 0020N 0480E 016	SW	SUNRISE 69	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848545	21 0020N 0480E 016	SW	SUNRISE 70	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848546	21 0020N 0480E 016	SW	SUNRISE 71	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848547	21 0020N 0480E 016	SW	SUNRISE 72	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848482	21 0020N 0480E 017	SE	GAW 1	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005

NMC848483	21 0020N 0480E 017	SW SE	GAW 2	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848484	21 0020N 0480E 017	SE	GAW 3	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848485	21 0020N 0480E 017	SW SE	GAW 4	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848545	21 0020N 0480E 017	SE	SUNRISE 70	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848547	21 0020N 0480E 017	SE	SUNRISE 72	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848484	21 0020N 0480E 020	NE	GAW 3	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848485	21 0020N 0480E 020	NE NW	GAW 4	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848486	21 0020N 0480E 020	NE	GAW 5	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848487	21 0020N 0480E 020	NE NW	GAW 6	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848488	21 0020N 0480E 020	NE	GAW 7	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848489	21 0020N 0480E 020	NE NW	GAW 8	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848490	21 0020N 0480E 020	NE	GAW 9	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848491	21 0020N 0480E 020	NE NW	GAW 10	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848492	21 0020N 0480E 020	NE	GAW 11	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848493	21 0020N 0480E 020	NE NW	GAW 12	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848494	21 0020N 0480E 020	NE SE	GAW 13	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848495	21 0020N 0480E 020	NE NW SW SE	GAW 14	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848496	21 0020N 0480E 020	SE	GAW 15	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848497	21 0020N 0480E 020	SW SE	GAW 16	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848498	21 0020N 0480E 020	SE	GAW 17	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848499	21 0020N 0480E 020	SW SE	GAW 18	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848500	21 0020N 0480E 020	SE	GAW 19	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848501	21 0020N 0480E 020	SW SE	GAW 20	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848502	21 0020N 0480E 020	SE	GAW 21	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848503	21 0020N 0480E 020	SW SE	GAW 22	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848543	21 0020N 0480E 020	NE	SUNRISE 68	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848545	21 0020N 0480E 020	NE	SUNRISE 70	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848536	21 0020N 0480E 021	NE	SUNRISE 43	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848537	21 0020N 0480E 021	NE NW	SUNRISE 44	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848538	21 0020N 0480E 021	NE	SUNRISE 45	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848539	21 0020N 0480E 021	NE NW	SUNRISE 46	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848542	21 0020N 0480E 021	NW	SUNRISE 67	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848543	21 0020N 0480E 021	NW	SUNRISE 68	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848544	21 0020N 0480E 021	NW	SUNRISE 69	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848545	21 0020N 0480E 021	NW	SUNRISE 70	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848502	21 0020N 0480E 029	NW	GAW 21	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848503	21 0020N 0480E 029	NE NW	GAW 22	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848504	21 0020N 0480E 029	NE	GAW 23	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848505	21 0020N 0480E 029	NE NW	GAW 24	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848506	21 0020N 0480E 029	NE	GAW 25	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848507	21 0020N 0480E 029	NE NW	GAW 26	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848508	21 0020N 0480E 029	NE	GAW 27	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848509	21 0020N 0480E 029	NE NW	GAW 28	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848510	21 0020N 0480E 029	NE SE	GAW 29	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848511	21 0020N 0480E 029	NE NW SW SE	GAW 30	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848512	21 0020N 0480E 029	SE	GAW 31	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848513	21 0020N 0480E 029	SW SE	GAW 32	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848514	21 0020N 0480E 029	SE	GAW 33	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848515	21 0020N 0480E 029	SW SE	GAW 34	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848516	21 0020N 0480E 029	SE	GAW 35	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005

NMC848517	21 0020N 0480E 029	SW SE	GAW 36	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848518	21 0020N 0480E 029	SE	GAW 37	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848519	21 0020N 0480E 029	SW SE	GAW 38	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848520	21 0020N 0480E 029	NE SE	GAW 39	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848521	21 0020N 0480E 029	SE	GAW 40	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848522	21 0020N 0480E 029	SE	GAW 41	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848523	21 0020N 0480E 029	SE	GAW 42	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848524	21 0020N 0480E 029	SE	GAW 43	BAUGHMAN GERALD W	NMC848482	384101	ACTIVE	3/22/2003	2005
NMC848421	21 0020S 0430E 021	SE	MIK 151	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	4/5/2003	2005
NMC848422	21 0020S 0430E 021	SE	MIK 152	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	4/5/2003	2005
NMC848423	21 0020S 0430E 021	SE	MIK ZERO	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	4/5/2003	2005
NMC848388	21 0020S 0430E 027	NW	MIK 48	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	4/5/2003	2005
NMC848389	21 0020S 0430E 027	NW	MIK 50	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	4/5/2003	2005
NMC848390	21 0020S 0430E 027	NW SW	MIK 52	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	4/5/2003	2005
NMC848391	21 0020S 0430E 027	SW	MIK 54	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	4/5/2003	2005
NMC848392	21 0020S 0430E 027	SW	MIK 56	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	4/5/2003	2005
NMC848393	21 0020S 0430E 027	SW	MIK 58	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	4/5/2003	2005
NMC848394	21 0020S 0430E 027	SW	MIK 60	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	4/5/2003	2005
NMC848417	21 0020S 0430E 027	SW	MIK 136	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	4/5/2003	2005
NMC848388	21 0020S 0430E 028	NE	MIK 48	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	4/5/2003	2005
NMC848389	21 0020S 0430E 028	NE	MIK 50	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	4/5/2003	2005
NMC848390	21 0020S 0430E 028	NE SE	MIK 52	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	4/5/2003	2005
NMC848391	21 0020S 0430E 028	SE	MIK 54	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	4/5/2003	2005
NMC848392	21 0020S 0430E 028	SE	MIK 56	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	4/5/2003	2005
NMC848393	21 0020S 0430E 028	SE	MIK 58	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	4/5/2003	2005
NMC848394	21 0020S 0430E 028	SE	MIK 60	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	4/5/2003	2005
NMC848417	21 0020S 0430E 028	SE	MIK 136	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	4/5/2003	2005
NMC848421	21 0020S 0430E 028	NE	MIK 151	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	4/5/2003	2005
NMC848422	21 0020S 0430E 028	NE	MIK 152	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	4/5/2003	2005
NMC848417	21 0020S 0430E 033	NE	MIK 136	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	4/5/2003	2005
NMC848417	21 0020S 0430E 034	NW	MIK 136	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	4/5/2003	2005
NMC848400	21 0020S 0430E 034	NE NW	MIK 111	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	4/6/2003	2005
NMC848418	21 0020S 0430E 034	NW	MIK 137	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	4/6/2003	2005
NMC848419	21 0020S 0430E 034	NE NW	MIK 138	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	4/6/2003	2005
NMC848420	21 0020S 0430E 034	NE NW	MIK 141	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	4/6/2003	2005
NMC848319	21 0020S 0430E 021	NW	GR	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	4/23/2003	2005
NMC848402	21 0020S 0430E 022	SW SE	MIK 120	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	4/23/2003	2005
NMC848403	21 0020S 0430E 022	SE	MIK 121	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	4/23/2003	2005
NMC848404	21 0020S 0430E 022	SW SE	MIK 122	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	4/23/2003	2005
NMC848405	21 0020S 0430E 022	SE	MIK 123	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	4/23/2003	2005
NMC848406	21 0020S 0430E 022	SE	MIK 125	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	4/23/2003	2005
NMC848395	21 0020S 0430E 027	NE	MIK 94	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	4/23/2003	2005
NMC848396	21 0020S 0430E 027	NE	MIK 95	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	4/23/2003	2005
NMC848397	21 0020S 0430E 027	NE	MIK 98	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	4/23/2003	2005
NMC848398	21 0020S 0430E 027	NE	MIK 100	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	4/23/2003	2005
NMC848399	21 0020S 0430E 027	NE SE	MIK 102	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	4/23/2003	2005
NMC848406	21 0020S 0430E 027	NE	MIK 125	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	4/23/2003	2005
NMC848313	21 0020S 0430E 029	NW	DAY BREAK	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	4/23/2003	2005
NMC848308	21 0020S 0430E 032	NW	BANNER	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	4/23/2003	2005
NMC848401	21 0020S 0430E 027	NW SW	MIK 119	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	5/13/2003	2005

NMC848407	21 0020S 0430E 027	NW	MIK 126	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	5/13/2003	2005
NMC848408	21 0020S 0430E 027	NW	MIK 127	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	5/13/2003	2005
NMC848409	21 0020S 0430E 027	NW	MIK 128	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	5/13/2003	2005
NMC848410	21 0020S 0430E 027	NW	MIK 129	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	5/13/2003	2005
NMC848411	21 0020S 0430E 027	NW SW	MIK 130	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	5/13/2003	2005
NMC848412	21 0020S 0430E 027	SW	MIK 131	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	5/13/2003	2005
NMC848413	21 0020S 0430E 027	SW	MIK 132	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	5/13/2003	2005
NMC848414	21 0020S 0430E 027	SW	MIK 133	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	5/13/2003	2005
NMC848415	21 0020S 0430E 027	SW	MIK 134	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	5/13/2003	2005
NMC848416	21 0020S 0430E 027	SW	MIK 135	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	5/13/2003	2005
NMC848416	21 0020S 0430E 034	NW	MIK 135	METALLIC GOLDFIELD INC	NMC848306	384101	ACTIVE	5/13/2003	2005
NMC854833	21 0010S 0510E 036	NW SW	CAPX 76	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/4/2003	2005
NMC854834	21 0010S 0510E 036	SW	CAPX 77	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/4/2003	2005
NMC854835	21 0010S 0510E 036	NW SW	CAPX 78	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/4/2003	2005
NMC854836	21 0010S 0510E 036	SW	CAPX 79	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/4/2003	2005
NMC854837	21 0010S 0510E 036	NW SW	CAPX 80	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/4/2003	2005
NMC854838	21 0010S 0510E 036	SW	CAPX 81	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/4/2003	2005
NMC854839	21 0010S 0510E 036	NW SW	CAPX 82	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/4/2003	2005
NMC854840	21 0010S 0510E 036	SW	CAPX 83	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/4/2003	2005
NMC854841	21 0010S 0510E 036	NE NW SW SE	CAPX 84	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/4/2003	2005
NMC854842	21 0010S 0510E 036	SW SE	CAPX 85	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/4/2003	2005
NMC854843	21 0010S 0510E 036	NE SE	CAPX 86	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/4/2003	2005
NMC854844	21 0010S 0510E 036	SE	CAPX 87	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/4/2003	2005
NMC854845	21 0010S 0510E 036	NE SE	CAPX 88	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/4/2003	2005
NMC854846	21 0010S 0510E 036	SE	CAPX 89	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/4/2003	2005
NMC854847	21 0010S 0510E 036	NE SE	CAPX 90	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/4/2003	2005
NMC854848	21 0010S 0510E 036	SE	CAPX 91	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/4/2003	2005
NMC854849	21 0010S 0510E 036	NE SE	CAPX 92	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/4/2003	2005
NMC854850	21 0010S 0510E 036	SE	CAPX 93	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/4/2003	2005
NMC854781	21 0010S 0510E 025	SW	CAPX 24	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/5/2003	2005
NMC854783	21 0010S 0510E 025	SW	CAPX 26	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/5/2003	2005
NMC854785	21 0010S 0510E 025	SW	CAPX 28	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/5/2003	2005
NMC854787	21 0010S 0510E 025	SW	CAPX 30	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/5/2003	2005
NMC854789	21 0010S 0510E 025	SW SE	CAPX 32	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/5/2003	2005
NMC854791	21 0010S 0510E 025	SE	CAPX 34	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/5/2003	2005
NMC854793	21 0010S 0510E 025	SE	CAPX 36	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/5/2003	2005
NMC854795	21 0010S 0510E 025	SE	CAPX 38	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/5/2003	2005
NMC854797	21 0010S 0510E 025	SE	CAPX 40	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/5/2003	2005
NMC854781	21 0010S 0510E 036	NW	CAPX 24	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/5/2003	2005
NMC854782	21 0010S 0510E 036	NW	CAPX 25	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/5/2003	2005
NMC854783	21 0010S 0510E 036	NW	CAPX 26	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/5/2003	2005
NMC854784	21 0010S 0510E 036	NW	CAPX 27	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/5/2003	2005
NMC854785	21 0010S 0510E 036	NW	CAPX 28	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/5/2003	2005
NMC854786	21 0010S 0510E 036	NW	CAPX 29	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/5/2003	2005
NMC854787	21 0010S 0510E 036	NW	CAPX 30	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/5/2003	2005
NMC854788	21 0010S 0510E 036	NW	CAPX 31	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/5/2003	2005
NMC854789	21 0010S 0510E 036	NE NW	CAPX 32	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/5/2003	2005
NMC854790	21 0010S 0510E 036	NE NW	CAPX 33	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/5/2003	2005
NMC854791	21 0010S 0510E 036	NE	CAPX 34	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/5/2003	2005
NMC854792	21 0010S 0510E 036	NE	CAPX 35	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/5/2003	2005

NMC854793	21 0010S 0510E 036	NE	CAPX 36	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/5/2003	2005
NMC854794	21 0010S 0510E 036	NE	CAPX 37	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/5/2003	2005
NMC854795	21 0010S 0510E 036	NE	CAPX 38	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/5/2003	2005
NMC854796	21 0010S 0510E 036	NE	CAPX 39	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/5/2003	2005
NMC854797	21 0010S 0510E 036	NE	CAPX 40	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/5/2003	2005
NMC854798	21 0010S 0510E 036	NE	CAPX 41	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/5/2003	2005
NMC854885	21 0010S 0510E 025	NW SW	CAPX 128	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/6/2003	2005
NMC854886	21 0010S 0510E 025	SW	CAPX 129	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/6/2003	2005
NMC854887	21 0010S 0510E 025	NW SW	CAPX 130	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/6/2003	2005
NMC854888	21 0010S 0510E 025	SW	CAPX 131	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/6/2003	2005
NMC854889	21 0010S 0510E 025	NW SW	CAPX 132	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/6/2003	2005
NMC854890	21 0010S 0510E 025	SW	CAPX 133	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/6/2003	2005
NMC854891	21 0010S 0510E 025	NW SW	CAPX 134	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/6/2003	2005
NMC854892	21 0010S 0510E 025	SW	CAPX 135	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/6/2003	2005
NMC854893	21 0010S 0510E 025	NE NW SW SE	CAPX 136	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/6/2003	2005
NMC854894	21 0010S 0510E 025	SW SE	CAPX 137	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/6/2003	2005
NMC854895	21 0010S 0510E 025	NE SE	CAPX 138	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/6/2003	2005
NMC854896	21 0010S 0510E 025	SE	CAPX 139	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/6/2003	2005
NMC854897	21 0010S 0510E 025	NE SE	CAPX 140	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/6/2003	2005
NMC854898	21 0010S 0510E 025	SE	CAPX 141	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/6/2003	2005
NMC854899	21 0010S 0510E 025	NE SE	CAPX 142	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/6/2003	2005
NMC854900	21 0010S 0510E 025	SE	CAPX 143	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/6/2003	2005
NMC854901	21 0010S 0510E 025	NE SE	CAPX 144	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/6/2003	2005
NMC854902	21 0010S 0510E 025	SE	CAPX 145	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/6/2003	2005
NMC854920	21 0010S 0510E 025	NW	CAPX 163	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/7/2003	2005
NMC854921	21 0010S 0510E 025	NW	CAPX 164	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/7/2003	2005
NMC854922	21 0010S 0510E 025	NW	CAPX 165	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/7/2003	2005
NMC854923	21 0010S 0510E 025	NW	CAPX 166	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/7/2003	2005
NMC854924	21 0010S 0510E 025	NE NW	CAPX 167	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/7/2003	2005
NMC854925	21 0010S 0510E 025	NE	CAPX 168	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/7/2003	2005
NMC854926	21 0010S 0510E 025	NE	CAPX 169	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/7/2003	2005
NMC854927	21 0010S 0510E 025	NE	CAPX 170	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/7/2003	2005
NMC854928	21 0010S 0510E 025	NE	CAPX 171	TOMANY BELVA L	NMC854758	384101	ACTIVE	10/7/2003	2005
NMC855990	21 0040N 0500E 030	SW	KAD #9	GOODSPRINGS DEVELOPMENT CORP	NMC855990	384101	ACTIVE	10/22/2003	2005
NMC855991	21 0040N 0500E 030	SW	KAD #16	GOODSPRINGS DEVELOPMENT CORP	NMC855990	384101	ACTIVE	10/22/2003	2005
NMC855992	21 0040N 0500E 030	SE	KAD #19	GOODSPRINGS DEVELOPMENT CORP	NMC855990	384101	ACTIVE	10/22/2003	2005
NMC855993	21 0040N 0500E 030	SE	KAD #20	GOODSPRINGS DEVELOPMENT CORP	NMC855990	384101	ACTIVE	10/22/2003	2005
NMC855994	21 0040N 0500E 030	SE	KAD #21	GOODSPRINGS DEVELOPMENT CORP	NMC855990	384101	ACTIVE	10/22/2003	2005
NMC855995	21 0040N 0500E 030	SE	KAD #22	GOODSPRINGS DEVELOPMENT CORP	NMC855990	384101	ACTIVE	10/22/2003	2005
NMC855996	21 0040N 0500E 030	NE	KAD #23	GOODSPRINGS DEVELOPMENT CORP	NMC855990	384101	ACTIVE	10/22/2003	2005
NMC855997	21 0040N 0500E 030	NE	KAD #24	GOODSPRINGS DEVELOPMENT CORP	NMC855990	384101	ACTIVE	10/22/2003	2005
NMC855998	21 0040N 0500E 030	NE	KAD #25	GOODSPRINGS DEVELOPMENT CORP	NMC855990	384101	ACTIVE	10/22/2003	2005
NMC855999	21 0040N 0500E 030	NE	KAD #26	GOODSPRINGS DEVELOPMENT CORP	NMC855990	384101	ACTIVE	10/22/2003	2005
NMC856000	21 0040N 0500E 030	NE	KAD #27	GOODSPRINGS DEVELOPMENT CORP	NMC855990	384101	ACTIVE	10/22/2003	2005
NMC856001	21 0040N 0500E 030	NE	KAD #28	GOODSPRINGS DEVELOPMENT CORP	NMC855990	384101	ACTIVE	10/22/2003	2005
NMC866501	21 0020S 0430E 022	SE	COLDERA SO CEN 22.1	LEWIS RICHARD A J	NMC866501	384101	ACTIVE	3/5/2004	2004
NMC866502	21 0020S 0430E 022	SE	COLDERA SO CEN 22.2	LEWIS RICHARD A J	NMC866501	384101	ACTIVE	3/5/2004	2004
NMC866503	21 0020S 0430E 022	SE	COLDERA SE CENTRAL 1	LEWIS RICHARD A J	NMC866501	384101	ACTIVE	3/5/2004	2004
NMC866509	21 0020S 0430E 022	NW	COLDERA NO CENTRAL 1	LEWIS RICHARD A J	NMC866501	384101	ACTIVE	3/5/2004	2004
NMC866510	21 0020S 0430E 022	NW	COLDERA NO CENTRAL 2	LEWIS RICHARD A J	NMC866501	384101	ACTIVE	3/5/2004	2004

NMC866511	21 0020S 0430E 022	NW	COLDERA NO CENTRAL 3	LEWIS RICHARD A J	NMC866501	384101	ACTIVE	3/5/2004	2004
NMC866512	21 0020S 0430E 022	NW	COLDERA NO CENTRAL 4	LEWIS RICHARD A J	NMC866501	384101	ACTIVE	3/5/2004	2004
NMC866513	21 0020S 0430E 022	NE	COLDERA NO CENTRAL 5	LEWIS RICHARD A J	NMC866501	384101	ACTIVE	3/5/2004	2004
NMC866514	21 0020S 0430E 022	NE	COLDERA NO CENTRAL 6	LEWIS RICHARD A J	NMC866501	384101	ACTIVE	3/5/2004	2004
NMC866515	21 0020S 0430E 022	NE	COLDERA NO CENTRAL 7	LEWIS RICHARD A J	NMC866501	384101	ACTIVE	3/5/2004	2004
NMC866516	21 0020S 0430E 022	NE	COLDERA NO CENTRAL 8	LEWIS RICHARD A J	NMC866501	384101	ACTIVE	3/5/2004	2004
NMC866504	21 0020S 0430E 027	NE	COLDERA SE CENTRAL 2	LEWIS RICHARD A J	NMC866501	384101	ACTIVE	3/5/2004	2004
NMC866505	21 0020S 0430E 027	NE	COLDERA SE CENTRAL 3	LEWIS RICHARD A J	NMC866501	384101	ACTIVE	3/5/2004	2004
NMC866506	21 0020S 0430E 027	NE	COLDERA SE CENTRAL 4	LEWIS RICHARD A J	NMC866501	384101	ACTIVE	3/5/2004	2004
NMC866507	21 0020S 0430E 027	NE	COLDERA SE CENTRAL 5	LEWIS RICHARD A J	NMC866501	384101	ACTIVE	3/5/2004	2004
NMC866508	21 0020S 0430E 027	NE	COLDERA SE CENTRAL 6	LEWIS RICHARD A J	NMC866501	384101	ACTIVE	3/5/2004	2004
NMC870638	21 0020S 0530E 001	SW	BLACKHAWK #33	BETA MINERALS USA INC	NMC870638	384101	ACTIVE	3/23/2004	2005
NMC870639	21 0020S 0530E 001	SW	BLACKHAWK #34	BETA MINERALS USA INC	NMC870638	384101	ACTIVE	3/23/2004	2005
NMC870640	21 0020S 0530E 001	SW SE	BLACKHAWK #35	BETA MINERALS USA INC	NMC870638	384101	ACTIVE	3/23/2004	2005
NMC870641	21 0020S 0530E 001	SE	BLACKHAWK #36	BETA MINERALS USA INC	NMC870638	384101	ACTIVE	3/23/2004	2005
NMC870642	21 0020S 0530E 001	SE	BLACKHAWK #37	BETA MINERALS USA INC	NMC870638	384101	ACTIVE	3/23/2004	2005
NMC871521	21 0020S 0430E 036	NE	VINDICATOR FRACTION2	METALLIC VENTURES (US) INC	NMC871520	384101	ACTIVE	5/11/2004	2005
NMC882200	21 0020N 0480E 021	SE	GPP 156	NEIGHBORS POMROY M	NMC882200	384101	ACTIVE	9/1/2004	2005
NMC882201	21 0020N 0480E 021	SE	GPP 157	NEIGHBORS POMROY M	NMC882200	384101	ACTIVE	9/1/2004	2005
NMC884626	21 0010N 0470E 031	SW	STL 1	GOODSPRINGS DEVELOPMENT CORP	NMC884626	384101	ACTIVE	9/28/2004	2005
NMC884627	21 0010N 0470E 031	SW	STL 2	GOODSPRINGS DEVELOPMENT CORP	NMC884626	384101	ACTIVE	9/28/2004	2005
NMC884628	21 0010N 0470E 031	SW	STL 3	GOODSPRINGS DEVELOPMENT CORP	NMC884626	384101	ACTIVE	9/28/2004	2005
NMC884629	21 0010N 0470E 031	SW	STL 4	GOODSPRINGS DEVELOPMENT CORP	NMC884626	384101	ACTIVE	9/28/2004	2005
NMC884630	21 0010N 0470E 031	SW	STL 5	GOODSPRINGS DEVELOPMENT CORP	NMC884626	384101	ACTIVE	9/28/2004	2005
NMC884631	21 0010N 0470E 031	SW	STL 6	GOODSPRINGS DEVELOPMENT CORP	NMC884626	384101	ACTIVE	9/28/2004	2005
NMC884632	21 0010N 0470E 031	SW	STL 7	GOODSPRINGS DEVELOPMENT CORP	NMC884626	384101	ACTIVE	9/28/2004	2005
NMC884633	21 0010N 0470E 031	SW	STL 8	GOODSPRINGS DEVELOPMENT CORP	NMC884626	384101	ACTIVE	9/28/2004	2005
NMC884634	21 0010N 0470E 031	SW	STL 9	GOODSPRINGS DEVELOPMENT CORP	NMC884626	384101	ACTIVE	9/28/2004	2005
NMC884635	21 0010N 0470E 031	SW	STL 10	GOODSPRINGS DEVELOPMENT CORP	NMC884626	384101	ACTIVE	9/28/2004	2005
NMC884636	21 0010N 0470E 031	SW	STL 11	GOODSPRINGS DEVELOPMENT CORP	NMC884626	384101	ACTIVE	9/28/2004	2005
NMC884637	21 0010N 0470E 031	SW	STL 12	GOODSPRINGS DEVELOPMENT CORP	NMC884626	384101	ACTIVE	9/28/2004	2005
NMC884638	21 0010N 0470E 031	SW	STL 13	GOODSPRINGS DEVELOPMENT CORP	NMC884626	384101	ACTIVE	9/28/2004	2005
NMC884639	21 0010N 0470E 031	SW	STL 14	GOODSPRINGS DEVELOPMENT CORP	NMC884626	384101	ACTIVE	9/28/2004	2005
NMC884640	21 0010N 0470E 031	SW	STL 15	GOODSPRINGS DEVELOPMENT CORP	NMC884626	384101	ACTIVE	9/28/2004	2005
NMC884641	21 0010N 0470E 031	SW	STL 16	GOODSPRINGS DEVELOPMENT CORP	NMC884626	384101	ACTIVE	9/28/2004	2005
NMC884642	21 0010N 0470E 031	SW	STL 17	GOODSPRINGS DEVELOPMENT CORP	NMC884626	384101	ACTIVE	9/28/2004	2005
NMC884643	21 0010N 0470E 031	SW	STL 18	GOODSPRINGS DEVELOPMENT CORP	NMC884626	384101	ACTIVE	9/28/2004	2005
NMC884644	21 0010N 0470E 031	SW	STL 19	GOODSPRINGS DEVELOPMENT CORP	NMC884626	384101	ACTIVE	9/28/2004	2005
NMC891086	21 0030S 0670E 036	SE	EMPY #5	LANDMARK MINERALS US INC	NMC891082	384101	ACTIVE	11/21/2004	2005
NMC886408	21 0130S 0480E 016	SE	SPIRIT #1	SELMAN ERNEST L	NMC886396	384101	ACTIVE	12/9/2004	2005
NMC886409	21 0130S 0480E 016	SE	SPIRIT #2	SELMAN ERNEST L	NMC886396	384101	ACTIVE	12/9/2004	2005

Placer Mining Claims

Serial Number	MTRS	Aliquot Part	Mining Claim Name	Customer Name	Mining Claim Lead Case File	Casetype	Case Disposition	Mining Claim Location Date	Last Assessed
NMC851520	21 0020S 0430E 022	NE NW	COLDERA CENTRAL NO I	LEWIS RICHARD A J	NMC851520	384201	ACTIVE	9/8/2003	2005
NMC851521	21 0020S 0430E 022	NE NW	COLDERA CENTRAL NO 2	LEWIS RICHARD A J	NMC851520	384201	ACTIVE	9/8/2003	2005
NMC851522	21 0020S 0430E 022	NE NW	COLDERA CENTRAL NO 3	LEWIS RICHARD A J	NMC851520	384201	ACTIVE	9/8/2003	2005
NMC851523	21 0020S 0430E 022	NE NW	COLDERA CENTRAL NO 4	LEWIS RICHARD A J	NMC851520	384201	ACTIVE	9/8/2003	2005
NMC851524	21 0020S 0430E 022	NE NW	COLDERA CENTRAL NO 5	LEWIS RICHARD A J	NMC851520	384201	ACTIVE	9/8/2003	2005
NMC851525	21 0020S 0430E 022	NE NW	COLDERA CENTRAL NO 6	LEWIS RICHARD A J	NMC851520	384201	ACTIVE	9/8/2003	2005
NMC851526	21 0020S 0430E 022	NE NW	COLDERA CENTRAL NO 7	LEWIS RICHARD A J	NMC851520	384201	ACTIVE	9/8/2003	2005
NMC851527	21 0020S 0430E 022	NE NW	COLDERA CENTRAL NO 8	LEWIS RICHARD A J	NMC851520	384201	ACTIVE	9/8/2003	2005

Millsite Mining Claim

Serial Number	MTRS	Aliquot Part	Mining Claim Name	Customer Name	Mining Claim Lead Case File	Casetype	Case Disposition	Mining Claim Location Date	Last Assessed
NMC865714	21 0040S 0670E 005	NW SW	ANTELOPE CANYON MILL	SONNENBERG AMELIA	NMC865710	384401	ACTIVE	1/28/2004	2005

Surface Management Notice of Intent to Operate (NOI)

Serial Number Full	Casetype	Case Disposition Text	Disposition Action Code	Action Text	Disposition Date	Action Remark	Labeled Total Acres
NVN 068553	380913	AUTHORIZED	868	EFFECTIVE DATE	8/17/1990		Total Acres = 0

Meridian Cd	Township	Range	Section	Sur Nr	Sur Suffix	Sur Type	Aliquot Part
21	0030N	0610E	32			ALL	ENTIRE SECTION
21	0030N	0610E	33			ALL	ENTIRE SECTION

Customer Name	Address	City	State	Zip Code	Percent Interest	Interest Rel Text
DAVIS LEMOINE	BOX 166	ALAMO	NV	89001	100	OPERATOR
DAVIS LEMOINE	BOX 166	ALAMO	NV	89001	50	CLAIMANT

Serial Number Full	Casetype	Case Disposition Text	Disposition Action Code	Action Text	Disposition Date	Action Remark	Labeled Total Acres
NVN 068889	380913	PENDING	387	CASE ESTABLISHED	7/12/1991		Total Acres = 4.5

Meridian Cd	Township	Range	Section	Sur Nr	Sur Suffix	Sur Type	Aliquot Part
21	0040S	0670E	5			ALL	ENTIRE SECTION

Customer Name	Address	City	State	Zip Code	Percent Interest	Interest Rel Text
WILKIN JOE	BOX 472	PANACA	NV	89042	100	CLAIMANT
WILKIN JOE	BOX 472	PANACA	NV	89042	100	OPERATOR

Serial Number Full	Casetype	Case Disposition Text	Disposition Action Code	Action Text	Disposition Date	Action Remark	Labeled Total Acres
NVN 073089	380913	AUTHORIZED	868	EFFECTIVE DATE	4/6/1990		Total Acres = 3.5

Meridian Cd	Township	Range	Section	Sur Nr	Sur Suffix	Sur Type	Aliquot Part
21	0110S	0470E	3			ALIQ	E2NW,W2NE;

Customer Name	Address	City	State	Zip Code	Percent Interest	Interest Rel Text
D & H MINING	PO BOX 897	BEATTY	NV	89003	100	OPERATOR

Serial Number Full	Casetype	Case Disposition Text	Disposition Action Code	Action Text	Disposition Date	Action Remark	Labeled Total Acres
NVN 076906	380913	AUTHORIZED	868	EFFECTIVE DATE	4/21/2003		Total Acres = 1.42

Meridian Cd	Township	Range	Section	Sur Nr	Sur Suffix	Sur Type	Aliquot Part
21	0030S	0430E	11			ALL	ENTIRE SECTION

Customer Name	Address	City	State	Zip Code	Percent Interest	Interest Rel Text
METALLIC GOLDFIELD INC	5450 RIGGINS CT STE 2	RENO	NV	89502	100	OPERATOR

Serial Number Full	Casetype	Case Disposition Text	Disposition Action Code	Action Text	Disposition Date	Action Remark	Labeled Total Acres
NVN 077082	380913	AUTHORIZED	868	EFFECTIVE DATE	5/15/2003		Total Acres = 2

Meridian Cd	Township	Range	Section	Sur Nr	Sur Suffix	Sur Type	Aliquot Part
21	0020N	0480E	21			ALL	ENTIRE SECTION
21	0020N	0480E	22			ALL	ENTIRE SECTION
21	0020N	0480E	27			ALL	ENTIRE SECTION
21	0020N	0480E	28			ALL	ENTIRE SECTION

Customer Name	Address	City	State	Zip Code	Percent Interest	Interest Rel Text
PACIFIC RIDGE EXPL LTD	1205-675 W HASTINGS ST	VANCOUVER	BC	0	100	OPERATOR

Serial Number Full	Casetype	Case Disposition Text	Disposition Action Code	Action Text	Disposition Date	Action Remark	Labeled Total Acres
NVN 077670	380913	AUTHORIZED	868	EFFECTIVE DATE	10/28/2003		Total Acres = 0.75

Meridian Cd	Township	Range	Section	Sur Nr	Sur Suffix	Sur Type	Aliquot Part
21	0030N	0490E	3			ALIQ	N2;

Customer Name	Address	City	State	Zip Code	Percent Interest	Interest Rel Text
SEABRIDGE GOLD CORP	172 KING ST 3RD FLR	TORONTO	ON	0	100	OPERATOR

Serial Number Full	Casetype	Case Disposition Text	Disposition Action Code	Action Text	Disposition Date	Action Remark	Labeled Total Acres
NVN 072905	380910	PENDING	387	CASE ESTABLISHED	12/16/1988		Total Acres = 230

Meridian Cd	Township	Range	Section	Sur Nr	Sur Suffix	Sur Type	Aliquot Part
21	0120S	0470E	1			ALL	ENTIRE SECTION
21	0120S	0470E	12			ALL	ENTIRE SECTION
21	0120S	0470E	13			ALL	ENTIRE SECTION
21	0120S	0480E	3			ALL	ENTIRE SECTION
21	0120S	0480E	4			ALL	ENTIRE SECTION
21	0120S	0480E	5			ALL	ENTIRE SECTION
21	0120S	0480E	6			ALL	ENTIRE SECTION
21	0120S	0480E	7			ALL	ENTIRE SECTION
21	0120S	0480E	8			ALL	ENTIRE SECTION
21	0120S	0480E	9			ALL	ENTIRE SECTION
21	0120S	0480E	10			ALL	ENTIRE SECTION
21	0120S	0480E	16			ALL	ENTIRE SECTION
21	0120S	0480E	17			ALL	ENTIRE SECTION
21	0120S	0480E	18			ALL	ENTIRE SECTION
21	0120S	0480E	19			ALL	ENTIRE SECTION
21	0120S	0480E	20			ALL	ENTIRE SECTION
21	0120S	0480E	21			ALL	ENTIRE SECTION
21	0120S	0480E	22			ALL	ENTIRE SECTION

Customer Name	Address	City	State	Zip Code	Percent Interest	Interest Rel Text
GLAMIS GOLD LTD	5190 NEIL RD	RENO	NV	89502	100	CLAIMANT
GLAMIS GOLD LTD	5190 NEIL RD	RENO	NV	89502	100	OPERATOR

Serial Number Full	Casetype	Case Disposition Text	Disposition Action Code	Action Text	Disposition Date	Action Remark	Labeled Total Acres
NVN 073037	380910	AUTHORIZED	915	OPERATIONS AUTHORIZED	8/14/1996		Total Acres = 587

Meridian Cd	Township	Range	Section	Sur Nr	Sur Suffix	Sur Type	Aliquot Part
21	0120S	0470E	11			ALL	ENTIRE SECTION
21	0120S	0470E	12			ALL	ENTIRE SECTION
21	0120S	0470E	13			ALL	ENTIRE SECTION
21	0120S	0470E	14			ALL	ENTIRE SECTION
21	0120S	0470E	15			ALL	ENTIRE SECTION
21	0120S	0470E	22			ALL	ENTIRE SECTION
21	0120S	0470E	23			ALL	ENTIRE SECTION
21	0120S	0480E	3			ALL	ENTIRE SECTION
21	0120S	0480E	4			ALL	ENTIRE SECTION
21	0120S	0480E	5			ALL	ENTIRE SECTION
21	0120S	0480E	6			ALL	ENTIRE SECTION
21	0120S	0480E	7			ALL	ENTIRE SECTION
21	0120S	0480E	8			ALL	ENTIRE SECTION

21	0120S	0480E	9			ALL	ENTIRE SECTION
21	0120S	0480E	10			ALL	ENTIRE SECTION
21	0120S	0480E	16			ALL	ENTIRE SECTION
21	0120S	0480E	17			ALL	ENTIRE SECTION
21	0120S	0480E	18			ALL	ENTIRE SECTION
21	0120S	0480E	19			ALL	ENTIRE SECTION
21	0120S	0480E	20			ALL	ENTIRE SECTION
21	0120S	0480E	21			ALL	ENTIRE SECTION
21	0120S	0480E	22			ALL	ENTIRE SECTION

Customer Name	*Address*	*City*	*State*	*Zip Code*	*Percent Interest*	*Interest Rel Text*
GLAMIS GOLD LTD	5190 NEIL RD	RENO	NV	89502	100	OPERATOR

Serial Number Full	Casetype	Case Disposition Text	Disposition Action Code	Action Text	Disposition Date	Action Remark	Labeled Total Acres
NVN 056674	311121	AUTHORIZED	868	EFFECTIVE DATE	1/1/1993		Total Acres = 1280

Meridian Cd	Township	Range	Section	Sur Nr	Sur Suffix	Sur Type	Aliquot Part
21	0030N	0590E	28			ALL	ENTIRE SECTION
21	0030N	0590E	29			ALL	ENTIRE SECTION

Customer Name	Address	City	State	Zip Code	Percent Interest	Interest Rel Text
DIVERSIFIED TITLE INC	10915 SNOW CLOUD TRAIL	LITTLETON	CO	80125	50	LESSEE
DOLAR MARK	935 E SOUTH UNION #D-202	SALT LAKE CITY	UT	84047	25	LESSEE
KRITIKOS T A	671 A WHITNEY AVE	NEW ORLEANS	LA	70053	25	LESSEE

Serial Number Full	Casetype	Case Disposition Text	Disposition Action Code	Action Text	Disposition Date	Action Remark	Labeled Total Acres
NVN 076119	311121	AUTHORIZED	868	EFFECTIVE DATE	1/1/2003		Total Acres = 4280

Meridian Cd	Township	Range	Section	Sur Nr	Sur Suffix	Sur Type	Aliquot Part
21	0090S	0470E	31			ALIQ	SENE,SE;
21	0090S	0470E	32			ALL	ENTIRE SECTION
21	0100S	0470E	5			ALL	ENTIRE SECTION
21	0100S	0470E	6			ALIQ	SESE;
21	0100S	0470E	7			ALIQ	NENE;
21	0100S	0470E	8			ALL	ENTIRE SECTION
21	0100S	0470E	9			ALL	ENTIRE SECTION
21	0100S	0470E	10			ALIQ	S2NE,SW,N2SE;
21	0100S	0470E	11			ALIQ	SWNW,NWSW;
21	0100S	0470E	14			ALIQ	E2E2,NWNE,SWSE;
21	0100S	0470E	15			ALIQ	N2NW;
21	0100S	0470E	16			ALIQ	N2NE;
21	0100S	0470E	23			ALIQ	NE,E2NW,SWNW,SW;
21	0100S	0470E	26			ALIQ	NWNE,NW;

Customer Name	Address	City	State	Zip Code	Percent Interest	Interest Rel Text
LINDEMANN HERMAN	1232 N ALEXANDRIA AVE	LOS ANGELES	CA	90029	100	LESSEE

Geothermal Leases Non-Competitive

No leases as of June 6, 2005 in the sections listed for withdrawal in the Federal Register.

Mineral Materials Disposal Sites (saleable free use permits)

Serial Number Full	Casetype	Case Disposition Text	Disposition Action Code	Action Text	Disposition Date	Action Remark	Labeled Total Acres
NVN 048723	360413	AUTHORIZED	705	ORDER ISSUED	11/30/1990	PIT EXPAND;	Total Acres = 280

Meridian Cd	Township	Range	Section	Sur Nr	Sur Suffix	Sur Type	Aliquot Part
21	0030S	0660E	36			LOTS	4;
21	0030S	0660E	36			MNR	S2SWSE;
21	0030S	0670E	31			ALIQ	SESW;
21	0040S	0670E	5			ALIQ	SWNW,NWSW;
21	0040S	0670E	5			LOTS	4;
21	0040S	0670E	6			LOTS	1;
21	0040S	0670E	6		1	MNR	N2NWNE;
21	0040S	0670E	6		2	MNR	NESENE,N2NENW,N2NENW;
21	0040S	0670E	6		3	MNR	N2N2NWNW;

Customer Name	Address	City	State	Zip Code	Percent Interest	Interest Rel Text
BLM	4701 N TORREY PINES DR	LAS VEGAS	NV	891302301	100	ADMIN MGT ENTITY

Mineral Materials Negotiated

Serial Number Full	Casetype	Case Disposition Text	Disposition Action Code	Action Text	Disposition Date	Action Remark	Labeled Total Acres
NVN 078002	361113	AUTHORIZED	276	PMT-LIC ISSUED	2/11/2004		Total Acres = 3.5

Meridian Cd	Township	Range	Section	Sur Nr	Sur Suffix	Sur Type	Aliquot Part
21	0110S	0480E	31			ALL	ENTIRE SECTION

Customer Name	Address	City	State	Zip Code	Percent Interest	Interest Rel Text
D & H MINING	PO BOX 897	BEATTY	NV	89003	100	APPLICANT

Mineral Materials Free Use Permit Government

No permits as of June 6, 2005 in the sections listed for withdrawal in the Federal Register.

Material Sites (SEC 107)

No row's granted as of August 16, 2005 in the sections listed for withdrawal in the Federal Register.

Material Sites (SEC 317)

Serial Number Full	Casetype	Case Disposition Text	Disposition Action Code	Action Text	Disposition Date	Action Remark	Labeled Total Acres
NVCC--0 014148	282104	AUTHORIZED	307	ROW GRANTED	4/20/1977		Total Acres = 80.780

Meridian Cd	Township	Range	Section	Sur Nr	Sur Suffix	Sur Type	Aliquot Part
21	0020N	0620E	013			PRO	N2SE
21	0020N	0630E	018			ALIQ	NESW
21	0020N	0630E	018			LOTS	3

Customer Name	Address	City	State	Zip Code	Percent Interest	Interest Rel Text
NV Dept of Trans	1263 S. Stewart Street	Carson City	NV	89712	100	APPLICANT

Serial Number Full	Casetype	Case Disposition Text	Disposition Action Code	Action Text	Disposition Date	Action Remark	Labeled Total Acres
NVCC--0 014146	282104	AUTHORIZED	307	ROW GRANTED	4/20/1977		Total Acres = 60.000

Meridian Cd	Township	Range	Section	Sur Nr	Sur Suffix	Sur Type	Aliquot Part
21	0020N	0620E	002			ALL	ENTIRE SECTION

Customer Name	Address	City	State	Zip Code	Percent Interest	Interest Rel Text
NV Dept of Trans	1263 S. Stewart Street	Carson City	NV	89712	100	APPLICANT

Material Sites (SEC 17)

Serial Number Full	Casetype	Case Disposition Text	Disposition Action Code	Action Text	Disposition Date	Action Remark	Labeled Total Acres
NVCC--0 020087	282106	AUTHORIZED	307	ROW GRANTED	12/1/1936		Total Acres = 41.756

Meridian Cd	Township	Range	Section	Sur Nr	Sur Suffix	Sur Type	Aliquot Part
21	0030N	0480E	004			ALIQ	SWNW,SENW
21	0030N	0490E	004			LOTS	4
21	0030N	0490E	004			MNR	N2NESW

Customer Name	Address	City	State	Zip Code	Percent Interest	Interest Rel Text
NV Dept of Trans	1263 S. Stewart Street	Carson City	NV	89712	100	HOLDER

Serial Number Full	Casetype	Case Disposition Text	Disposition Action Code	Action Text	Disposition Date	Action Remark	Labeled Total Acres
NVCC--- - 004142	282106	AUTHORIZED	307	ROW GRANTED	2/12/1970		Total Acres = 60.00

Meridian Cd	Township	Range	Section	Sur Nr	Sur Suffix	Sur Type	Aliquot Part
21	0050S	0430E	008			FF	
21	0050S	0430E	017			FF	

Customer Name	Address	City	State	Zip Code	Percent Interest	Interest Rel Text
NV Dept of Trans	1263 S. Stewart Street	Carson City	NV	89712	100	HOLDER

Serial Number Full	Casetype	Case Disposition Text	Disposition Action Code	Action Text	Disposition Date	Action Remark	Labeled Total Acres
NVCC--- - 0 020114	282106	AUTHORIZED	307	ROW GRANTED	3/22/1937		Total Acres = 40.00

Meridian Cd	Township	Range	Section	Sur Nr	Sur Suffix	Sur Type	Aliquot Part
21	0030S	0670E	015			ALIQ	NESW

Customer Name	Address	City	State	Zip Code	Percent Interest	Interest Rel Text
NV Dept of Trans	1263 S. Stewart Street	Carson City	NV	89712	100	HOLDER

Serial Number Full	Casetype	Case Disposition Text	Disposition Action Code	Action Text	Disposition Date	Action Remark	Labeled Total Acres
NVCC-- 0 020112	282106	AUTHORIZED	307	ROW GRANTED	3/22/1937		Total Acres = 40.00

Meridian Cd	Township	Range	Section	Sur Nr	Sur Suffix	Sur Type	Aliquot Part
21	0030S	0670E	029			ALIQ	SESE

Customer Name	Address	City	State	Zip Code	Percent Interest	Interest Rel Text
NV Dept of Trans	1263 S. Stewart Street	Carson City	NV	89712	100	HOLDER

Serial Number Full	Casetype	Case Disposition Text	Disposition Action Code	Action Text	Disposition Date	Action Remark	Labeled Total Acres	
NVCC-- 0 020091	282106	AUTHORIZED	307	ROW GRANTED	12/1/1937		Total Acres = 40.00	
	Meridian Cd	**Township**	**Range**	**Section**	**Sur Nr**	**Sur Suffix**	**Sur Type**	**Aliquot Part**
	21	0040N	0500E	030			ALIQ	SWSE
		Customer Name	**Address**	**City**	**State**	**Zip Code**	**Percent Interest**	**Interest Rel Text**
		NV Dept of Trans	1263 S. Stewart Street	Carson City	NV	89712	100	HOLDER

Serial Number Full	Casetype	Case Disposition Text	Disposition Action Code	Action Text	Disposition Date	Action Remark	Labeled Total Acres	
NVCC-- 0 018453	282106	AUTHORIZED	307	ROW GRANTED	6/22/1935		Total Acres = 80.00	
	Meridian Cd	**Township**	**Range**	**Section**	**Sur Nr**	**Sur Suffix**	**Sur Type**	**Aliquot Part**
	21	0050S	0430E	017			ALIQ	SENW,SESW
		Customer Name	**Address**	**City**	**State**	**Zip Code**	**Percent Interest**	**Interest Rel Text**
		NV Dept of Trans	1263 S. Stewart Street	Carson City	NV	89712	100	HOLDER

Serial Number Full	Casetype	Case Disposition Text	Disposition Action Code	Action Text	Disposition Date	Action Remark	Labeled Total Acres	
NVCC-- 0 018447	282106	AUTHORIZED	307	ROW GRANTED	6/22/1935		Total Acres = 40.00	
	Meridian Cd	**Township**	**Range**	**Section**	**Sur Nr**	**Sur Suffix**	**Sur Type**	**Aliquot Part**
	21	0070S	0430E	001			PRO	SWNW
		Customer Name	**Address**	**City**	**State**	**Zip Code**	**Percent Interest**	**Interest Rel Text**
		NV Dept of Trans	1263 S. Stewart Street	Carson City	NV	89712	100	APPLICANT

Serial Number Full	Casetype	Case Disposition Text	Disposition Action Code	Action Text	Disposition Date	Action Remark	Labeled Total Acres	
NVCC-- 0 057468	282106	AUTHORIZED	307	ROW GRANTED	4/16/1961		Total Acres = 40.00	
	Meridian Cd	**Township**	**Range**	**Section**	**Sur Nr**	**Sur Suffix**	**Sur Type**	**Aliquot Part**
	21	0070S	0430E	002			ALIQ	E2SENE,E2NESE
		Customer Name	**Address**	**City**	**State**	**Zip Code**	**Percent Interest**	**Interest Rel Text**
		NV Dept of Trans	1263 S. Stewart Street	Carson City	NV	89712	100	HOLDER

Serial Number Full	Casetype	Case Disposition Text	Disposition Action Code	Action Text	Disposition Date	Action Remark	Labeled Total Acres
NVCC-- 0 004471	282106	AUTHORIZED	307	ROW GRANTED	12/21/1950		Total Acres = 40.00

Meridian Cd	Township	Range	Section	Sur Nr	Sur Suffix	Sur Type	Aliquot Part
21	0070S	0440E	031			PRO	SESESW,SWSWSE
21	0080S	0440E	006			PRO	NENENW,NWNWNE

Customer Name	Address	City	State	Zip Code	Percent Interest	Interest Rel Text
NV Dept of Trans	1263 S. Stewart Street	Carson City	NV	89712	100	HOLDER

Serial Number Full	Casetype	Case Disposition Text	Disposition Action Code	Action Text	Disposition Date	Action Remark	Labeled Total Acres
NVCC-- 0 018464	282106	AUTHORIZED	307	ROW GRANTED	6/22/1935		Total Acres = 40.00

Meridian Cd	Township	Range	Section	Sur Nr	Sur Suffix	Sur Type	Aliquot Part
21	0080S	0440E	013			PRO	SESE

Customer Name	Address	City	State	Zip Code	Percent Interest	Interest Rel Text
NV Dept of Trans	1263 S. Stewart Street	Carson City	NV	89712	100	HOLDER

Serial Number Full	Casetype	Case Disposition Text	Disposition Action Code	Action Text	Disposition Date	Action Remark	Labeled Total Acres
NVCC-- 0 018460	282106	AUTHORIZED	307	ROW GRANTED	6/22/1935		Total Acres = 40.00

Meridian Cd	Township	Range	Section	Sur Nr	Sur Suffix	Sur Type	Aliquot Part
21	0080S	0450E	019			PRO	SWSE

Customer Name	Address	City	State	Zip Code	Percent Interest	Interest Rel Text
NV Dept of Trans	1263 S. Stewart Street	Carson City	NV	89712	100	HOLDER

Serial Number Full	Casetype	Case Disposition Text	Disposition Action Code	Action Text	Disposition Date	Action Remark	Labeled Total Acres
NVCC-- 0 018462	282106	AUTHORIZED	307	ROW GRANTED	6/22/1935		Total Acres = 40.413

Meridian Cd	Township	Range	Section	Sur Nr	Sur Suffix	Sur Type	Aliquot Part
21	0080S	0450E	029			PRO	NESW

Customer Name	Address	City	State	Zip Code	Percent Interest	Interest Rel Text
NV Dept of Trans	1263 S. Stewart Street	Carson City	NV	89712	100	HOLDER

Serial Number Full	Casetype	Case Disposition Text	Disposition Action Code	Action Text	Disposition Date	Action Remark	Labeled Total Acres
NVCC-- 0 057469	282106	AUTHORIZED	307	ROW GRANTED	5/10/1961		Total Acres = 40.00

Meridian Cd	Township	Range	Section	Sur Nr	Sur Suffix	Sur Type	Aliquot Part
21	0090S	0450E	003			ALIQ	E2SESW,W2SWSE

Customer Name	Address	City	State	Zip Code	Percent Interest	Interest Rel Text
NV Dept of Trans	1263 S. Stewart Street	Carson City	NV	89712	100	HOLDER

Serial Number Full	Casetype	Case Disposition Text	Disposition Action Code	Action Text	Disposition Date	Action Remark	Labeled Total Acres
NVCC-- 0 018461	282106	AUTHORIZED	307	ROW GRANTED	6/22/1961		Total Acres = 40.00

Meridian Cd	Township	Range	Section	Sur Nr	Sur Suffix	Sur Type	Aliquot Part
21	0090S	0450E	010			PRO	NENW

Customer Name	Address	City	State	Zip Code	Percent Interest	Interest Rel Text
NV Dept of Trans	1263 S. Stewart Street	Carson City	NV	89712	100	HOLDER

Serial Number Full	Casetype	Case Disposition Text	Disposition Action Code	Action Text	Disposition Date	Action Remark	Labeled Total Acres
NVCC-- 0 018466	282106	AUTHORIZED	307	ROW GRANTED	6/22/1935		Total Acres = 40.00

Meridian Cd	Township	Range	Section	Sur Nr	Sur Suffix	Sur Type	Aliquot Part
21	0090S	0450E	011			PRO	SESW

Customer Name	Address	City	State	Zip Code	Percent Interest	Interest Rel Text
NV Dept of Trans	1263 S. Stewart Street	Carson City	NV	89712	100	HOLDER

Serial Number Full	Casetype	Case Disposition Text	Disposition Action Code	Action Text	Disposition Date	Action Remark	Labeled Total Acres
NVCC-- 0 018463	282106	AUTHORIZED	307	ROW GRANTED	6/22/1935		Total Acres = 40.00

Meridian Cd	Township	Range	Section	Sur Nr	Sur Suffix	Sur Type	Aliquot Part
21	0090S	0460E	020			PRO	SWSE

Customer Name	Address	City	State	Zip Code	Percent Interest	Interest Rel Text
NV Dept of Trans	1263 S. Stewart Street	Carson City	NV	89712	100	HOLDER

Serial Number Full	Casetype	Case Disposition Text	Disposition Action Code	Action Text	Disposition Date	Action Remark	Labeled Total Acres	
NVCC-- 0 018465	282106	AUTHORIZED	307	ROW GRANTED	6/22/1935		Total Acres = 40.00	
	Meridian Cd	Township	Range	Section	Sur Nr	Sur Suffix	Sur Type	Aliquot Part
	21	0090S	0460E	034			PRO	NWNE
		Customer Name	Address	City	State	Zip Code	Percent Interest	Interest Rel Text
		NV Dept of Trans	1263 S. Stewart Street	Carson City	NV	89712	100	HOLDER

Serial Number Full	Casetype	Case Disposition Text	Disposition Action Code	Action Text	Disposition Date	Action Remark	Labeled Total Acres	
NVCC-- 0 018446	282106	AUTHORIZED	307	ROW GRANTED	6/22/1935		Total Acres = 40.00	
	Meridian Cd	Township	Range	Section	Sur Nr	Sur Suffix	Sur Type	Aliquot Part
	21	0100S	0460E	013			RSD	W2NWSE,E2NESW
		Customer Name	Address	City	State	Zip Code	Percent Interest	Interest Rel Text
		NV Dept of Trans	1263 S. Stewart Street	Carson City	NV	89712	100	GRANTEE

Serial Number Full	Casetype	Case Disposition Text	Disposition Action Code	Action Text	Disposition Date	Action Remark	Labeled Total Acres	
NVCC-- 0 057467	282106	AUTHORIZED	307	ROW GRANTED	5/10/1961		Total Acres = 100.00	
	Meridian Cd	Township	Range	Section	Sur Nr	Sur Suffix	Sur Type	Aliquot Part
	21	0100S	0460E	013			PRO	E2NW,W2SW
		Customer Name	Address	City	State	Zip Code	Percent Interest	Interest Rel Text
		NV Dept of Trans	1263 S. Stewart Street	Carson City	NV	89712	100	GRANTEE

APPENDIX C

MINING DISTRICTS AND OTHER KNOWN MINERALIZED AREAS WITHIN AND NEAR THE PROPOSED LAND WITHDRAWAL

APPENDIX C

MINING DISTRICTS AND OTHER KNOWN MINERALIZED AREAS WITHIN AND NEAR THE PROPOSED LAND WITHDRAWAL

TABLE OF CONTENTS

		Page
C.1	KNOWN MINING DISTRICTS (METALLIC AND NON-METALLIC RESOURCES)	C-1
C.1.1	Bare Mountain (Fluorine) Mining District	C-1
C.1.2	Bullfrog (Rhyolite) Mining District	C-5
C.1.3	Transvaal Mining District	C-7
C.1.4	Clarkdale Mining District	C-7
C.1.5	Wagner Mining District	C-7
C.1.6	Stonewall Mining District	C-7
C.1.7	Cuprite Mining District	C-7
C.1.8	Goldfield Mining District and Surrounding Areas	C-7
C.1.9	Klondyke Mining District	C-7
C.1.10	Ellendale Mining District (including South Monitor Hills)	C-7
C.1.11	Golden Arrow Mining District	C-7
C.1.12	Bellehelen Mining District	C-7
C.1.13	Clifford Mining District	C-7
C.1.14	Tybo Mining District	C-7
C.1.15	Mercury Mountain Mining District	C-7
C.1.16	Reveille and Arrowhead Mining Districts	C-7
C.1.17	Eden Mining District	C-7
C.1.18	Queen City Mining District	C-7
C.1.19	Freiberg Mining District	C-7
C.1.20	Quinn Canyon Mining District	C-7
C.1.21	Sharp Mining District	C-7
C.1.22	Seaman Range Mining District	C-7
C.1.23	Ely Springs Mining District	C-7
C.1.24	Comet Mining District	C-7
C.1.25	Chief Mining District	C-7
C.1.26	Panaca Mining District and Area	C-7
C.1.27	Little Mountain Mining District	C-7
C.2	OTHER KNOWN MINERALIZED AREAS WITHIN AND NEAR THE PROPOSED LAND WITHDRAWAL	C-7
C.1.28	Reveille Valley Area	C-7
C.1.29	Pozzolan Placer Area	C-7
C.1.30	Caliente Area	C-7

APPENDIX C

MINING DISTRICTS AND OTHER KNOWN MINERALIZED AREAS WITHIN AND NEAR THE PROPOSED LAND WITHDRAWAL

This appendix is divided into two sections. Section C.1 describes 27 mining districts within and near the proposed land withdrawal (Sections C.1.1 through C.1.27). Section C.2 describes three other known mineralized areas within and near the proposed land withdrawal (Sections C.2.1 through C.2.3).

References cited in the text of this appendix are listed in Section 6 (References) of the main report.

C.1 KNOWN MINING DISTRICTS (METALLIC AND NON-METALLIC RESOURCES)

Plate 1 shows the locations of mining districts discussed in this appendix.

C.1.1 Bare Mountain (Fluorine) Mining District

The Bare Mountain mining district, also known as the Fluorine district, encompasses all of Bare Mountain and abuts the Bullfrog district on the west. The majority of historical mining took place in the northern part of the district, about 2 to 5 miles east of the town of Beatty in Nye County. The northeastern part of the district overlaps part of the proposed land withdrawal (or the *corridor*).

History of Discovery, Exploration, and Mining. Gold ore was discovered on the eastern slope of Bare Mountain in 1905, and the camp of Telluride sprang up. The Bull Moose property produced gold ore from 1913 to 1915. Cinnabar was discovered by J.B. Kiernan and A.A. Turner on the eastern flank of Bare Mountain in 1908. In 1912, a 10-ton Scott mercury furnace was erected by Telluride Consolidated Quicksilver Co., which produced from 1912 to 1915. In 1913, opal-bearing cinnabar from this area was cut for gem purposes. A few carloads of kaolin were shipped from three properties to a California pottery plant in 1917 and 1918. Fluorspar mining claims were located in 1918 by J. Irving Crowell and sold to the Spar Products Corporation, which gave the Continental Fluorspar Co. a 20-year lease. The first fluorite production in Nevada was made in 1919 when 700 tons were shipped by the Continental Co. In 1920, 632 tons were shipped.

Large amounts of fluorspar have been mined in the district, and small amounts of mercury, ceramic silica, volcanic cinders, and pumicite have been recorded. Meager showings of gold, silver, and tungsten have been found in several prospects, but no production has been recorded. Unsuccessful attempts have been made to quarry marble at Carrara Canyon, 7 miles southeast of Beatty, and perlite 3 miles east of Beatty.

The following information for four properties in the Bare Mountain mining district was obtained from the NBMG (2003). At the Sterling Gold Property southeast of Beatty, Imperial Metals Corp. drilled 17 holes. Results of this drilling program expanded the 144-foot zone to 500 feet by 750 feet. The 144-foot zone is about 700 feet below surface and remains open in all directions. The following table provides information regarding ore reserves/resources and production history of the Sterling Gold Property (in the Table "opt" means *oz. per ton*).

STERLING GOLD PROPERTY
ORE RESERVES/RESOURCES AND PRODUCTION HISTORY

Deposit Name	Reserves/Resources	Production History
Sterling (Bare Mountain District)	1983: 200,000 tons, 0.20 opt Au 1989: 469,000 tons, 0.21 opt Au 1996: 129,000 tons, 0.245 opt Au	1983-88: 75,900 oz Au 1990-91: 24,841 oz Au 1995-98: 36,811 oz Au 1999: 3,093 oz Au

Notes:
Au = gold
opt = oz. per ton

Ore reserves/resources and production history of the Daisy Mine, which is owned by Glamis Gold Ltd., are reported in the NBMG (2003) as follows (in the Table "opt" means *oz. per ton.*):

DAISY MINE
ORE RESERVES/RESOURCES AND PRODUCTION HISTORY

Deposit Name	Reserves/Resources	Production History
Daisy (Bare Mountain District)	1993: 4.7 million tons, 0.024 opt Au geologic resource – 430,000 oz Au 1998: 4.2 million tons, 0.033 opt Au proven and probable reserves	1997-98: 64,504 oz Au 1999: 30,660 oz Au 2000: 8,740 oz Au 2001: 347 oz Au

Notes:
Au = gold
opt = oz. per ton

Glamis Gold Ltd. also owns the Reward Property. Ore reserves/resources and production history are reported below NBMG (2003).

GLAMIS GOLD, LTD
ORE RESERVES/RESOURCES AND PRODUCTION HISTORY

Deposit Name	Reserves/Resources	Production History
Reward Property (Bare Mountain District)	1998: 77,500 oz Au	(no data provided in reference)

Notes:
Au = gold

For the Nevada Mercury Deposit, it appears that the most recent work was about 10 years ago, in 1994.

NEVADA MERCURY DEPOSIT
ORE RESERVES/RESOURCES AND PRODUCTION HISTORY

Deposit Name	Reserves/Resources	Production History
Nevada Mercury (Bare Mountain District)	1994: *geologic resource* – 50,000 oz Au	(no data provided in reference)

Notes:
Au = gold

An undated Glamis Gold Ltd. website contained the following information about the Daisy and Reward properties. The Daisy open-pit mine, consisting of 18.2 square miles in Nye County, began production in 1997 and produced and sold 32,504 oz. of gold in its second year of operation. The Daisy open-pit mine was a cost-effective operation, as its cash operating costs were reduced from $301 per ounce in the first year of operation to an estimated cash operating cost of $230 per ounce (including royalty) in 1998. An additional sulfide resource has been delineated at the Daisy Mine. The Reward Project was being developed and gold production was planned for late 1999. The Reward Project would extend the life of the Daisy mine to 2002 (Glamis Gold Ltd., undated).

Information regarding the Sterling Property was obtained from the Imperial Metals Corporation website (Imperial Metals Corporation, 2005). Sterling commenced operation both as an underground and open-pit mine in 1980 and operated through 2000. During this time, it produced 194,996 troy ounces from 941,341 short tons of ore with an average grade of 0.217 oz. per ton gold. The Sterling project claims and mine site cover about 3,700 acres).

Imperial Metals Corporation initiated an exploration program in 2000 involving regional geochemical sampling and gravity geophysics aimed at finding gold anomalies or prospective stratigraphy worthy of follow-up drill testing. In 2001, the discovery of a deep, high-grade gold zone (the 144 Zone) in a setting that exhibits many of the hallmarks of the structurally controlled Carlin-type deposits represented a new setting for gold deposition on this property. Two borings found gold mineralization in silty carbonates at the contact between the Bonanza King dolomite and the Carrara limestone. The depth of these intercepts is about 700 feet below the surface and some 300 feet below the lowermost underground workings at Sterling. In 2002, a surface rotary and diamond drill program further tested the target area, and was followed by a geophysical survey. In 2003, 30 holes totaling 9,000 feet were completed. All holes that penetrated the zone intersected elevated gold values and enlarged the 144 Zone to 500 feet by 750 feet. Also in 2003, an additional 29 claims were acquired under lease to secure the potential northerly extension of the 144 Zone gold-bearing structure (Imperial Metals Corporation, 2005).

Generalized Geologic Description. The Bare Mountains are comprised of Paleozoic sedimentary rocks that have been intruded by pegmatites and monzonite porphyry. The mountains have been strongly disturbed by folding and faulting. The hills at the northern end of the mountains are mostly Tertiary rhyolite and basalt.

Mineral Occurrences. Precious metals occur in small, irregular quartz veins within dolomite. The veins are chiefly gold bearing, although some contain silver. The minerals present include chalcopyrite, malachite, azurite, galena, pyrite, limonite, hematite, fluorite, and gypsum.

Mercury ore and opal also occur in dolomites and consist of masses of opal or of cryptocrystalline silica carrying cinnabar. Coarsely crystalline calcite and barite were noted, with cinnabar in shattered dolomite in one instance.

The largest fluorspar deposit, the Daisy deposit, is about 4 miles southeast of Beatty. The deposit occurs in dolomite of the Nopah Formation in a structurally complex area with prominent northeast-trending, steeply-dipping, right-lateral tear faults and gently northwest-dipping thrust faults. The shape and extent of the ore bodies appear to be controlled in large part by these two sets of faults, which roughly bound the bodies both vertically and laterally. The ore shoots are almost everywhere bounded by zones of fault gouge, and these impermeable zones apparently restricted the ore solutions to defined channels where the fractured dolomite was almost completely replaced by fluorite.

The ore at the Daisy deposit consists of fine-grained purple fluorite with seams and layers of yellow clayey gouge. In the lower levels, the fluorite is partly to largely white or yellow and granular; calcite-filled fissures as much as 3 feet wide are common. Fine crystals of cinnabar are locally abundant, lining vugs in this calcite. The radioactivity of the deposit has been investigated, and the equivalent uranium content was found to range from 0.002 to 0.015 percent (Cornwall and Kleinhampl, 1961). The ore mineral was probably deposited by ascending hydrothermal solutions that moved along permeable channels in the fractured Paleozoic rocks. The ore solutions probably moved up from a nearby chamber of Tertiary rhyolite magma that also erupted voluminous ash flows, tuffs, and fluidal flows in the area just north of the Daisy Mine (Cornwall, 1972).

C.1.2 Bullfrog (Rhyolite) Mining District

The Bullfrog mining district, also known as the Rhyolite district, is in the Bullfrog Hills in southern Nye County. It surrounds the western side of Beatty and extends from Bullfrog and Rhyolite on the south to Pioneer on the north. The northern section of the Bullfrog district is sometimes considered a separate district called the Pioneer district. A small area north of the Pioneer Mine called Daisy Mountain is also included in the district. The northeastern boundary of the Bullfrog district abuts the corridor.

History of Discovery, Exploration, and Mining. Bullfrog was discovered by Frank ("Shorty") Harris in 1904, and a rush of prospectors into the new camp ensued. In 1905, the Las Vegas and Tonopah Railroad (LV&TRR) reached the district; in 1907, the Beatty Goldfield Railroad (BGRR) and the Tolicha and Tonopah Railroad (T&TRR), then the LV&TRR, was extended to Goldfield. The Montgomery-Shoshone mine was the most important mine in the district. This property was equipped with a 200-ton amalgamating, concentrating, and cyaniding mill, which began operations in 1907 and shut down in 1910. In 1911, the Mayflower mine was operating a 15-stamp mill, and in 1912, the Tramp mine was also running a mill. The Pioneer 10-stamp mill began operations late in 1913, and the Sunset 10-stamp mill was erected in 1914. The Pioneer mill shut down in 1917, and activities in the camp were at a low ebb until 1921 when the mines in the Pioneer section resumed active development work (Lincoln, 1923).

Reported production from the Bullfrog district from 1905 to 1921 was 286,664 tons of ore containing 111,805.16 oz. of gold, 868,749 oz. of silver, 5,294 pounds of copper, and 11,897 pounds of lead. The total production of these commodities was valued at $2,792,930 (Lincoln, 1923).

The Providence Gold Project in the Bullfrog mining district is being evaluated by Alberta Star Development, which has agreed to explore and develop JABA, Inc.'s property (NBMG, 2003). The property consists of 45 unpatented and 2 patented claims and is on the eastern edge of the Montgomery-Shoshone pit of the Barrick Bullfrog mine complex. Geologic and alteration mapping and detailed geochemistry suggests that an extension of the gold mineralization across the property boundary that forms the eastern wall of the open pit is present in strongly altered and closely veined tuff on the Providence property.

Relatively recent reserves/resources and production information for the Montgomery Shoshone, Gold Bar and Bullfrog properties in the Bullfrog mining district is summarized below from the NBMG (2003) report (in the Table "opt" means *ounces per ton*).

MONTGOMERY SHOSHONE, GOLD BAR, AND BULLFROG PROPERTIES ORE RESERVES/RESOURCES AND PRODUCTION HISTORY

Deposit Name	Reserves/Resources	Production History
Montgomery Shoshone	1988: 3.1 million ton, 0.072 opt Au, 0.240 opt Ag	(no data provided in reference)
Gold Bar	1987: 1.23 million tons Au ore 1993: Idle	(no data provided in reference)
Bullfrog	1987: 18.6 million tons, 0.097 opt Au 1996: 10.2 million tons, 0.062 opt Au proven and probable reserves; 3.7 million tons, 0.040 opt Au mineralized material	1989-89: 2,237,484 oz Au; 2,935,484 or Ag 1999: 76,159 oz Au; 90.067 oz Ag

Notes:
Au = gold
opt = ounces per ton

Generalized Geologic Description. The gold deposits occur in fissures and veins in rhyolitic-welded tuffs and, for the most part, are related to steep normal faults as described in detail by Ransome et al. (1910). Most of the deposits occur along the eastern rim of a postulated caldera. Several other deposits, including the original Bullfrog mine, occur along the northern contact of the central domal uplift of basement rocks into the Tertiary pyroclastics (Cornwall, 1972).

Ransome et al. (1910) state that the principal ore body of the district occurred in the Montgomery-Shoshone mine near the surface, where numerous vertical fissures on the southeastern side of the steeply dipping Montgomery-Shoshone fault intersected it from below. The two other most promising deposits in the district are at the Mayflower and Pioneer mines located 6.0 and 6.5 miles northwest of Beatty, respectively. The Mayflower deposit occurs along a fault or fissure that dips 60 to 65 degrees southwest. The Pioneer deposit is said to be identical to the adjoining Mayflower deposit. The rhyolitic host rocks of these deposits (welded tuffs of the Timber Mountain and Paintbrush Tuffs) exhibit moderate to intense alteration. Most of the other gold-silver prospects in the Bullfrog Hills are similar to, but leaner than, those described above.

Mineral Occurrences. The mineralogy of the gold-to-silver veins is simple and consists of quartz, calcite, and finely disseminated gold-silver in scattered pyrite grains. Veins in the original Bullfrog mine also contain small amounts of chalcocite, chrysocolla, and malachite. Cerargyrite has been detected but is not abundant. The gold-to-silver ratio is reported to be 1:8, and the average grade was $10 per ton. Indications of radioactivity have been found at two of the gold-to-silver prospects, but no uranium production has been reported (Cornwall, 1972).

In addition to the precious metal deposits of the Bullfrog mining district, a small bentonite deposit at the Vanderbilt mine, 1.5 miles south of Beatty, was operated by the Silicates Corporation. Two bentonite bodies, 300 feet apart, occur along the footwall side of a fault that dips about 50 degrees west. The bentonite formed by intense hydrothermal alteration of welded and nonwelded rhyolite tuff. The high-grade ore is soft and white, and has waxy pink or tan spots that probably represent pumice fragments. Original phenocrysts of quartz, sanidine, oligoclase, and biotite are still visible in the bentonite. X-ray determinations indicate that the bentonitic clay is nearly pure montmorillonite (Cornwall, 1972).

C.1.3 Transvaal Mining District

The Transvaal mining district, also known as the Nyopolis district, is north of Beatty Wash, about 15 miles northeast of Beatty in southern Nye County. The southwestern part of the Transvaal mining district is within 1 mile of the corridor.

History of Discovery, Exploration, and Mining. Transvaal was discovered in 1906, was only active for a few months, and has no recorded production. Upon discovery of occurrences of gold and mercury, a rapid but short-lived boom that included the construction of a tent city occurred. The population quickly reached a maximum of 700 persons and 2 newspapers began, but by late May of the same year, the site was completely abandoned (Hall, 1981). Numerous adits, shafts, and prospects are present in the district. Little else is known about the early history of the district.

Generalized Geologic Description. Workings in the district are generally associated with faults and hydrothermally altered volcanic rocks near the margin of the Timber Mountain caldera, which formed during the eruption of the Ammonia Tanks Tuff (Byers et al., 1989; Nogle et al., 1991). The main part of the district is located east and southeast of the Transvaal site and is situated within intracaldera facies ash-flow tuffs and landslide deposits of the Rainer Mesa Tuff, and overlying and outflow-facies of the Ammonia Tanks Tuff and tuff of Cutoff Road (Byers et al., 1976). A large area of acid-sulfate alteration characterized by porous, fine-grained mixtures of kaolinite, alunite, quartz, opal, and iron oxides ± calcite ± dolomite, and inferred to be of the steam-heated type, is centered about 1 mile east of the Transvaal site. This alteration assemblage grades abruptly westward into a large area of weak argillic alteration containing narrow zones of silicification and adularization along fault surfaces. In the northern part of the district, the area of argillic alteration is bordered by areas of zeolitic alteration within ash-flow units of the Timber Mountain Group. The zeolitic alteration is characterized by the presence of abundant thin veins and fracture coatings of coarsely crystalline stilbite and smaller amounts of water-clear alunite.

Mineral Occurrences. The principal workings of the district are located less than 1 mile southeast of the town site and consist of a shaft estimated to be less than 300 feet deep, and a nearby adit. Most workings in the main and northern parts of the district are along steeply dipping, north- to northeast-striking normal faults, mainly within areas of argillic and zeolitic alteration. Innumerable shallow pits, cuts, and short adits are also associated with areas of distinctive, reddish-orange, iron-oxide staining common in tabular bodies of clast- and matrix-supported landslide breccia.

Geochemical data generated by Tingley et al. (1998) show that rocks that have undergone acid-sulfate alteration contained only weakly elevated concentrations of mercury, gold, and other elements. During this geochemical survey, no evidence of ores of any type was observed on the dumps of or within the shallow workings in the district. The geochemical data, together with the nature of the alteration exposed in the district, are consistent with that of a shallow, largely vapor-dominated portion of an epithermal-type hydrothermal system.

C.1.4 Clarkdale Mining District

The Clarkdale mining district is about 7 miles southeast of Scotty's Junction on the eastern side of U.S. Highway 95. The southwestern boundary of the district overlaps the corridor. Most of the old workings at the Clarkdale and Yellow Gold mine are 3 to 5 miles northeast of the corridor.

History of Discovery, Exploration, and Mining. The initial discoveries were made at the Yellow Gold mine in 1931, and rich ore was discovered at the Clarkdale mine in 1932. The workings on the claims in the district followed gold-bearing quartz veins and consisted of adits, drifts, and shafts with a maximum reported depth of more than 300 feet. By 1940, the total recorded production from the Clarkdale district was 316 tons of ore yielding 160 ounces (oz.) of gold and 398 oz. of silver. The camp was abandoned following this production, although valid claims were held at least until 1951 (Tingley et al., 1998).

Generalized Geologic Description. The Clarkdale district is located along the western edge of Pahute Mesa, which is a broad, elevated, nearly flat plateau covered by flat-lying ash-flow tuffs of the Timber Mountain and Thirsty Canyon Tuffs. These tuffs contain intrusive bodies of porphyritic rhyolite and rhyolite breccia that have locally been kaolinized or silicified, and exhibit extensive hydrothermal alteration southwest of the district near U.S. Highway 95. Examination of aerial photographs led to a relatively recent (1995) suggestion that the Clarkdale district is situated within an area of post-11.4 million years ago (Ma) hydrothermal activity associated with the latter stages of magmatic activity of the southwestern Nevada volcanic field (Tingley et al., 1998).

Mineral Occurrences. The Clarkdale mine workings are situated along a quartz-calcite fissure vein that strikes N 10^0 E and dips about 60^0 E. The vein formed in a fault that cuts altered volcanic conglomerate and an intrusive body of porphyritic rhyolite and rhyolite breccia. Near the vein, the host rocks are pervasively silicified, and locally contain veins and veinlets of quartz with disseminated pyrite and the replacement of feldspar by adularia, albite, quartz, and illite-sericite. The Yellow Gold mine workings explored narrow, discontinuous, quartz-calcite veins and quartz-calcite-barite-cemented breccia. The veins and breccias fill steeply dipping faults and fractures that mainly trend north and northeast, dipping steeply to the west. The faults and fractures cut the Rainier Mesa (?) Tuff and overlying volcanic sandstone and conglomerate. Near-vein alteration in the Rainier Mesa (?) Tuff is similar to alteration at the Clarkdale mine, with silicification and adularization accompanied by veinlets of quartz + illite-sericite+pyrite. Between the Clarkdale and Yellow Gold mines, the geologic setting and the texture and mineral assemblage of the alteration suggest a shallow, possibly vapor-dominated, steam-heated type of acid-sulfate hydrothermal environment (Tingley et al., 1998).

C.1.5 Wagner Mining District

The Wagner mining district is located east of U.S. Highway 95 about 7 miles north of Scotty's Junction. The district is almost entirely within the corridor.

History of Discovery, Exploration, and Mining. The 18 claims of the Wagner (Ish) Group were located in 1903 and 1904 by Frank M. Ish of Goldfield, who had sunk two 100-foot shafts on the property by October 1906. Ore material from one of the shafts was said to assay 10 to 13 percent copper and $5 to $8 in gold, and material found during assessment work on the Ish group ran 20 percent copper and $15 in gold. There were plans to ship ore from the property in 1906, but there is no record of any production at that time. The Wingfield interests sank the main shaft 453 feet deep, as well as a circular shaft 100 feet deep, about a year or so prior to 1912, the year in which the claims were patented under the ownership of the Wagner Copper Co. (Lincoln, 1923).

The property was drilled by Gulf Resources and subsequently by BHP in the early 1990s. Some of the holes, drilled as deep as 1,400 feet, searched for a buried porphyry copper system. Apparently, an intrusive porphyry was not found in the deep holes drilled by BHP, but their drilling may not have been deep enough or in the correct locality (Tingley et al., 1998). Results of the drilling programs were not provided in the documents reviewed for this report.

Generalized Geologic Description. The main stratigraphic unit in the Wagner district is the Wood Canyon Formation of Late Proterozoic and Early Cambrian age. It consists of a thick sequence of shale, quartzite, and some intercalated limestone in this area. The Wood Canyon Formation is intruded by an andesite plug and is unconformably overlain by silicic tuffs (Tingley et al., 1998).

Mineral Occurrences. Mineralization in the district is confined to the Wood Canyon Formation; the Tertiary volcanic rocks are unaltered. The mineralization occurs in brecciated quartzite, in silicified and brecciated shale, and in kaolinized shale at one locality. Typical ores consisted of hematite-stained, brecciated quartzite cemented with clear, crystalline quartz, malachite, chrysocolla, and azurite. Recent sample analysis (Tingley et al., 1998) showed anomalous amounts of arsenic, bismuth, nickel, cadmium, mercury, antimony, zinc, cobalt, molybdenum, selenium, tellurium, uranium, tungsten, vanadium, tin, thallium, and barium in various samples.

The anomalous suite of elements of recent samples and the character of the mineralization (stockwork veinlets, silicified breccias in shales, quartzite, and minor carbonate replacement) characterize the Wagner mining district as a polymetallic replacement deposit that is possibly related to a buried copper porphyry (Tingley et al., 1998).

C.1.6 Stonewall Mining District

The Stonewall mining district is located on the north slope of Stonewall Mountain about 15 miles southeast of Goldfield, at the northwestern periphery of Pahute Mesa. The western end of the district overlaps the corridor, although most of the historical workings are several miles east of the corridor.

History of Discovery, Exploration, and Mining. The Stonewall mining district was prospected for gold and silver as early as 1905, and small shipments were made in 1911 and 1915 (Lincoln, 1923). Gold values ranged from a trace to $6 per ton. Kral (1951) reports that the Sterlog claims at the northwestern corner of the Stonewall Mountain have a 240-foot shaft on a vein with silver mineralization and a 1-mile-long adit driven south from Stonewall Flat to intersect the vein 500 feet below the collar of the shaft. The adit was driven in the 1920s and the property was abandoned shortly after.

In 1982, Stonewall Silver mines was conducting extensive drilling up the northwestern side of Stonewall Mountain and had exposed five or six benches and new roads and a mill site at the apex of the canyon (Quade, 1984). This area is about ½ mile south of the Stonewall mine and the mineralizing vein structure.

According to the Seabridge Gold, Inc. news release dated March 10, 2003, the Stonewall project includes 73 claims and covers the northern flank of the Stonewall Mountains, about 15 miles southeast of Goldfield, Nevada. During the early 1900s, the Stonewall mining district witnessed significant precious-metals production from high-grade veins, which remain untested by modern exploration. The current exploration focus at Stonewall is on a series of generally parallel quartz veins occupying concentric ring fractures of a resurgent Tertiary caldera. These veins range from 1 to more than 60 feet in thickness with strike lengths of up to 8,000 feet. Textural evidence suggests that these veins could represent the upper levels of an epithermal bonanza deposit (Seabridge Gold, Inc., 2003).

Generalized Geologic Description. According to Cornwall (1972), Stonewall Mountain consists of steeply dipping rhyolitic and latitic welded tuffs intruded by quartz latite, and is bounded on the east by glassy rhyolite flows and plugs. Two blocks of Precambrian rocks border the intrusive quartz latite at the northern end of the mountain. The welded tuffs have not been recognized outside of the mountain area. They may be concealed by younger rocks and alluvium that surrounded the mountain, or they may have been erupted into a volcano-tectonic graben and thus confined to that area.

The northern end of Stonewall Mountain is bounded by a steep northward-dipping normal fault with downward movement on the northern side. The eastern part of the district, in the vicinity of Stonewall Spring, is underlain largely by intracaldera welded rhyolite ash-flow tuffs and silicic resurgent intrusions that have been hydrothermally altered to propylitic mineral assemblages (quartz, adularia, albite, chlorite, illite, epidote, pyrite, and calcite).

Mineral Occurrences. An east-northeast-striking, north-dipping system of quartz veins extends for about 5 miles along splays of the prominent range-bounding fault. The veins are as much as 15 feet wide and consist of banded, crustiform and drusy-comb quartz with locally abundant boxwork texture after bladed and tabular calcite. Much of the vein system contains zones up to about 45 feet in width that consist of closely spaced, anastomosing and subparallel veins and cockade-crustified breccia. Fragments of banded quartz overgrown by later stages of quartz are common and are indicative of repeated episodes of brecciation and fracturing during vein emplacement. Wall rocks are strongly adularized, silicified, and pyritized for several tens of feet away from the vein margins. The veins are thoroughly oxidized in surface exposures (Cornwall, 1972).

Recent chemical data (Tingley et al., 1998) from surface rock-chip samples indicate that the veins contain highly elevated but sub-economic quantities of gold and silver. Concentrations of base metals and the indicator elements arsenic, antimony, mercury, tellurium, and thallium are low, even in samples that contain abundant silver. Tin and selenium are low, and elevated amounts of bismuth and molybdenum are present locally.

C.1.7 Cuprite Mining District

The Cuprite mining district is located along Mount Jackson Ridge, about 12 to 15 miles south of Goldfield in Esmeralda County. The eastern end of the Cuprite district abuts the corridor.

History of Discovery, Exploration, and Mining. The copper ores that gave the Cuprite mining district its name were discovered in 1905. Small amounts of copper and lead-silver ore have been shipped. A few shipments of sulphur were made prior to 1909, and a considerable number since 1909 (Lincoln, 1923).

At the northeastern end of the Cuprite mining district, west of U.S. Highway 95, field reconnaissance indicated evidence of recent mining claims (wooden posts) as well as recent trenching and drilling (Shannon & Wilson, 2005a). There is also a silica quarry within the mining district. The identity of the owner of this property was not determined in the course of these studies.

Generalized Geologic Description. According to Ball (1907), chalcopyrite and lesser pyrite, galena, calcite, and quartz appear to have been deposited as sporadic masses in the limestone as seams along joints and as lens-shaped bodies along shear zones. The ores were altered by aqueous solutions to chalcocite, carbonates, and oxides. The limestone is apparently part of the Mule Spring Limestone (Lower Cambrian) and the Emigrant Formation (Middle and Upper Cambrian).

In the northeastern end of the district, mineralization consists of gold-bearing veins in Tertiary rhyolite and sulphur in altered Tertiary tuffaceous sedimentary rocks and welded tuffs. Production from the district is apparently very small, and none has been recorded (Ball, 1907).

Mineral Occurrences. The mineral deposits of the Cuprite mining district are copper-silver-gold replacements in the Cambrian limestone and gold-bearing veins in Tertiary rhyolite. The minerals of the replacement deposits are chalcopyrite, pyrite, galena, calcite, and quartz.

Deposits of silica, sulphur, and potash have been identified (Ransome, 1909). One large deposit is located on top of a small hill of Siebert Conglomerate and is a nearly horizontal stratum of white ashy material containing masses of sulphur. This white material was probably originally rhyolite tuff or glass, but is now altered to silica and alunite. A second deposit is located about ½ mile northeast of Cuprite and consists of altered rhyolite pumice containing alunite. Most of the silica is low alunite, and the alunite is a soda variety low in potash (Lincoln, 1923).

C.1.8 Goldfield Mining District and Surrounding Areas

The Goldfield mining district is located in the Goldfield Hills in eastern Esmeralda County and western Nye County, near the town of Goldfield. The mining district includes three areas commonly referred to as the Goldfield Main, McMahon Ridge, and Gemfield. An additional area (referred to as the Tom Keane area) has been the subject of recent (2003) exploration efforts. About 35 square miles of the corridor are within the Goldfield district and adjoining mining areas. Initial field reconnaissance of the Goldfield mining district area conducted in June and July 2004 and April 2005 included a preliminary evaluation within and in the vicinity of the corridor (Shannon & Wilson, 2005a).

History of Discovery, Exploration, and Mining. The Goldfield mining district was discovered by Harry Stimler and William Marsh on 2 December 1902. After a brief period of excitement, most of the prospectors left the camp and the original claims were allowed to lapse. A.D. Meyers and R.C. Hart located the Combination Lode on 24 May 1903. Ore was discovered on that claim the following October, shipments began in December, and the great Goldfield stampede ensued. The railroad was extended to Goldfield in 1905, at which time the population of the town was 8,000. The Goldfield Consolidated Mines Company (GCMC), the principal company in the camp, was organized by George Wingfield and George Stuart Nixon in 1906, and its 100-stamp mill was completed in 1908. In 1908, the town of Goldfield reached its maximum population of 20,000. From 1904 to 1918, the Goldfield mining district was the most important gold-producing district in Nevada. By that time, the large known ore bodies had become nearly exhausted and the production fell off rapidly (Lincoln, 1923).

After the GCMC closed in December 1918, some minor production continued during the 1920s, primarily by leaseholders. The Bradshaw Company's work of reprocessing the GCMC mill tailing was the majority of activity in the Goldfield mining district during the 1930s. Newmont discovered and mined the Newmont Lode in the Goldfield Main portion of the mining district during the late 1940s. Only sporadic, small-scale prospecting activity is known to have occurred in the 1950s. Several companies explored the Goldfield mining district for copper-molybdenum deposits during the 1960s. Since 1970, the Goldifield mining district has been the focus of numerous exploration ventures for gold, mainly because of the deregulation of the gold price (Metallic Ventures Gold, Inc. [MVGI], 2005).

American Resources Corporation and its predecessors extracted a significant tonnage of heap leach ore from the Combination, Red Top, and Jumbo open-pit mines from 1988 through 1995, but production figures are uncertain. North Mining leased the exploration rights for the property in 1996 and conducted exploration activities on the property through 1998. Rea Gold Corporation acquired American Resources Corporation, but declared bankruptcy in 1998. Decommissioning Services LLV of Reno, Nevada, acquired the property interests and reclamation responsibilities of Rea Gold. Romarco Goldfield, a wholly owned subsidiary of

Romarco Minerals, Inc., obtained a mining sublease, lease, and option–to-purchase agreement for the Decommissioning Services LLC, properties in 1999 and conducted exploration activities on the property until the company purchased the U. S. interests of Romarco Goldfield (now Metallic Goldfield) from Romarco Minerals, Inc. in April 2001. MVGI has been actively exploring for gold throughout the Goldfield mining district since that time, but drilling efforts have been focused mainly in the Gemfield and McMahon Ridge areas (MVGI, 2005).

Based on information obtained from MVGI, districtwide exploration efforts in the Goldfield mining district in the past were limited to a large degree by the fragmented character of the land ownership. The large land position of MVGI has recently provided unprecedented private access to all parts of the mineral system, resulting in a much more comprehensive understanding of the geology and exploration potential of the Goldfield mining district (MVGI, 2005).

More than 4.2 million oz. of gold, 1.5 million oz. of silver, and 7.7 million pounds of copper have been produced from the Goldfield mining district since discovered in 1902 (Ashley and Keith, 1976). Only sporadic minor production has come from the district since then (1920s) (MVGI, 2005).

According to interviews conducted as part of the June and July 2004 and April 2005 investigative efforts, MVGI has been and currently is active in the district. They have consolidated and continue to consolidate land and mineral resource ownership, and they are conducting exploration activities that have defined economic gold mineralization in several separate areas within the district, including McMahon Ridge, Gemfield, and Goldfield Main (MVGI, 2005).

The following information was obtained from the MVGI Renewal Annual Information Form for the year ended 31 December 2005, dated March 2005. The Goldfield Project consists of 385 patented and 849 unpatented claims covering more than 20,600 acres in Esmeralda and Nye Counties. Based on information provided in the 2005 summary, the Goldfield Project land holdings are very large and very complex in terms of location, ownership, and spatial relationship of patented and unpatented mining claims. Existing gold resources are contained in three areas on the Goldfield property: the Goldfield Main deposit, located immediately northeast of the town site, the Gemfield deposit located 1.5 miles north of town, and the McMahon Ridge deposit located about 2.5 miles northeast of Goldfield. The Goldfield Project is in the exploration stage, and definitive economic studies have not been completed.

MVGI completed a considerable amount of pre-feasibility work in 2004. The scope of work included metallurgical testing, detailed deposit modeling, environmental studies, permitting, and development drilling. Comprehensive metallurgical tests were completed on samples of diamond drill core from six holes representing the Gemfield deposits and four holes from the McMahon Ridge deposit.

The 2004 exploration program generally included the following as obtained from the MVGI March 2005 Renewal Annual Information Form for the year ending 31 December 2004. As the first part of the drilling program, MVGI completed 47,070 feet of reverse circulation drilling in three key areas of the Goldfield property during 2004. A total of 22,460 feet of drilling was completed in 39 holes in the Adams mine area, which is situated about halfway between the McMahon Ridge and Gemfield gold deposits, and is considered a favorable site for an ore processing facility. The 2004 Adams mine drilling program was a continuation of the evaluation process for the locations of haul roads, plant sites, and heap leach pads initiated during 2003.

The second part of the 2004 drill campaign consisted of 11,820 feet of reverse-circulation drilling in 25 infill holes completed within the McMahon Ridge deposit. Additional drilling increased MVGI's confidence in the geologic model, and the results provided a better understanding of gold distribution in the core area of the deposit, where the majority of the resource ounces are known to occur. Part three of the 2004 drilling program was exploration oriented and amounted to 12,790 feet of drilling in 12 holes completed in the historical Jumbo Extension mining area of the Goldfield Main district.

The 2004 Goldfield drilling program was completed by the end of March. Highlights of the 2004 MVGI drilling program are provided in the Appendix. If the results of the NI 43-101 report for the Gemfield and McMahon Ridge areas are positive, MVGI plans to conduct additional metallurgical tests, step-out drilling for open-pit design, and waste dump-site condemnation in 2005. They also plan to conduct in-house economic scoping studies in 2005, in advance of a feasibility study (MVGI, 2005).

Although in their March 2005 report MVGI provided only the previously prepared 2002 table regarding inferred and indicated resources (the same table previously provided in this report), it was indicated that a significant amount of new data had been added to the drill hole database since these estimates were compiled, particularly in reference to the Gemfield and McMahon Ridge gold deposits.

The following information regarding future exploration and development was obtained from the March 2005 MVGI report. MVGI has conducted most of the recent exploration to date on McMahon Ridge and the Gemfield deposit. A minor amount of work has been completed in the Goldfield Main district and several other prospective exploration target areas. The focus of these programs has been to expand known resources, evaluate their potential mineability, and explore still untested targets. Gemfield and McMahon Ridge areas had significant amounts of successful drilling. The new data have significantly expanded the known resources and significantly improved the understanding of the deposit. Analysis of available data indicates that there may be opportunities to expand the resource at depth. The Gemfield district was previously evaluated as an open-pit mine by Kennecott Exploration Company and later explored by Franco-Nevada for the high-grade potential. The subsequent and highly successful infill-drilling program completed by MVGI has proven the continuity of mineralization and also has added significantly to the deposit by increasing overall grade and extending the outer limits, which are still open. The Goldfield Main district has the potential to expand the estimated resources, but some remaining questions regarding the underlying data define these resources.

The Tom Keane area is about 5 miles east of the Goldfield Main district along the East Goldfield structural belt and southeast of the ring fracture zone. Previous drilling in the Tom Keane target area detected high-grade gold associated with main district-style ledges. The strike length of the Tom Keane structural zone is about 1.6 miles as defined by intense hydrothermal alternation and anomalous gold mineralization. A total of 4,915 feet of exploration drilling was completed in the Tom Keane mine area in 2003.

Generalized Geologic Description. The geology of the district has been described comprehensively by Ransome (1909), among others, and only a brief description is given here. The principal rocks are Miocene volcanic rocks that overlie a basement of Ordovician shale and chert (Palmetto Formation) and Mesozoic granitic rock. The principal host rocks in which ore shoots occur are the Milltown Andesite and an overlying dacite. Both of these units give isotopic ages of about 21.5 million years. They are highly bleached and altered, generally in a large eastward-elongated, elliptical belt that includes the principal productive part of the district. Elsewhere, they have undergone only fairly weak propylitic alteration. The bleached rocks are argillized, alunitized, and silicified. Typically, the most silicified and alunitized rock forms more or less linear ledges enclosed in soft argillized rock. The individual ledges range from a few feet to hundreds, and locally to thousands of feet long and from a few feet to many tens of feet wide. They occur mainly within and parallel to the margins of an eastward, elongated, elliptical area, which measures about 5 to 7 miles long east-west and 3 to 4 miles long north-south. It can be demonstrated that the major faulting in the district occurred prior to alteration and mineralization, and it is apparent that the ledges, which dip mostly at angles steeper than 40 degrees, reflect an elliptical fracture system, possibly the rim facture zone of a caldera.

The principal mineralized belt is a quartz-alunite ledge system that trends generally north and dips 30^0 to 40^0 E., but which in detail has many peculiar bends and irregularities. The dip generally flattens with increasing depth. Individual ore bodies contained in the ledge system were typically rather small, extremely irregular in shape, and often very high in grade. According to Locke (1912), the ore bodies were much like plums in a pudding, and only 6 percent of the aggregate lode areas revealed in all the levels of the Goldfield Consolidated was occupied by ore. However, in certain areas there was more or less an alignment of ore bodies downdip so that their distribution was not completely haphazard. Nevertheless, prediction of the location and/or grade of ore bodies was virtually impossible. The shape of some individual ore bodies was roughly equidimensional, lenticular, plate-like, or tabular, and some were even spindle-shaped. Feeders for ore bodies were difficult to find and follow, but apparently in some places they led to the discovery of ore bodies. Very little ore was found as deep as 1,000 feet (Albers and Stewart, 1972).

The gold was almost entirely in the form of very fine-grained native gold. Famatinite, bismuthinite, and pyrite were closely associated with it in the unoxidized ore, which generally extended to within 150 feet of the surface. The gold-to-silver ratio was about 3:1. That the ore mineralization is younger than the alunitization and silicification is shown by its occurrence along fractures within the altered rock.

In the broad sense, the Goldfield mining district also includes two other productive areas. The Sandstorm was discovered a short while before the main district and is about a mile north of it. In the Sandstorm area, ore shoots containing native gold were localized at the intersections of fractures in rhyolitic rock. Production was probably about $1.5 million. The other productive area was Diamondfield, which achieved some stature as a mining district and is described separately (Ransome et al., 1909; Albers and Stewart, 1972).

The Diamondfield mining district is about 5 miles northeast of Goldfield in the northern segment of the elliptical belt of altered rock described in the section on the Goldfield mining district. The district is a little over a mile long, and the western part is characterized by quartz-alunite ledges that trend eastward and dip nearly vertical. They are enveloped by argillized

Milltown Andesite. There is limited detailed published information on Diamondfield, but apparently the ore bodies in the western part of the district were irregular, plunged steeply, and contained free gold as the ore mineral, and very little silver. In contrast, the ore bodies at the eastern end of the Diamondfield district were along a nearly flat fracture zone in highly silicified dacite and contained a much higher percentage of silver than any other ores in the entire Goldfield area. Total recorded production of the Diamondfield district is $52,305, but actual production may be as much as $1 to $2 million (Albers and Stewart, 1972).

A more modern interpretation of the geologic setting of the Goldfield mining district provided by MVGI (2005) follows. The Goldfield mining district is located at the site of a complex and long-lived igneous center that is defined by eruptive vents located along a circular fault system or ring-fracture zone. The center of the ring-fracture zone or core area has been domed-up by a late-stage buried intrusive event that is believed to have been the source of hydrothermal fluids responsible for wall rock alteration and the metallic mineral deposits. Gold mineralization has occurred mainly along the ring-fracture zone within 600 feet of the surface in the Goldfield Main district and McMahon Ridge areas where fractures and faults have provided conduits for the mineralizing fluids. Volcanic rocks most frequently serve as host formations to mineralization along the ring-fracture zone, but significant gold and copper ore has been mined from older pre-Tertiary basement rocks along the eastern side of the Goldfield Main district.

Mineral Occurrences. The Goldfield ore deposits are irregular lodes in the fractured and highly altered country rocks. Replacement of the country rocks by quartz, kaolinite, alunite, and pyrite has occurred. The ore shoots are in the form of irregular bodies in the irregular lodes, and their limits can be determined only by assays. The principal ore bodies are in dacite, though some are in rhyolite, andesite, and latite, and low-grade ore with occasional rich shoots occurring at the latite-shale contact (Lincoln, 1923; Albers and Stewart, 1972).

The principal gangue mineral is compact quartz derived from the silicification of volcanic rock, and associated kaolinite and alunite. The ore minerals occur mainly in the quartz, though at times, in or near alunite. They consist of fine-grained pyrite and marcasite, bismuthinite, goldfieldite, arsenical famatinite, native gold and tellurides, with minor amounts of other sulphides. Concentric shells of ore minerals around altered rock fragments are characteristic of the rich ore (Lincoln, 1923; Albers and Stewart, 1972).

Information provided by MVGI (2005) indicates that zones of high-grade gold mineralization occur in prominent fault structures and igneous dikes in the Goldfield Main, McMahon Ridge, and Gemfield deposits. These mineralized zones have a linear vein-like geometry and are referred to locally as ledges. In the case of the Gemfield deposit, the Sandstorm Rhyolite is particularly favorable for hosting disseminated gold mineralization adjacent to the high-grade silica ledges.

C.1.9 Klondyke Mining District

The Klondyke mining district, also known as the Southern Klondyke district, is located in the southern Klondyke Hills about 10 miles south of Tonopah, near the eastern edge of Nye County. The eastern boundary of the district is about 1 mile west of three sections of the corridor. The majority of historical mining was 2.5 to 3.5 miles west of the corridor.

History of Discovery, Exploration, and Mining. The Klondyke mining district was discovered in 1899 (Lincoln, 1923). Up until 1905, about $50,000 was produced from one property in the district, which produced through at least 1923, the date of the report. From 1908 to 1921, it produced 11,236 tons of ore containing a total value of metals valued at $263,700. Other sources report less production from the district.

Recent 2-inch by 2-inch wooden claim posts were observed at the southeastern part of the district, and were located by Mineral Exploration & Development Co. in Mina, Nevada. This company is drilling between the Klondyke and the Goldfield mining districts (Ann Carpenter, pers. comm., 2004).

Generalized Geologic Description. Most of the deposits in the district occur in limestone of the Emigrant Formation (Middle and Upper Cambrian). The limestone is cut by northwest-trending rhyolite dikes, and intruded by irregular rhyolite bodies and one small granitic mass.

Mineral Occurrences. According to Ball (1907), the deposits are of three types: (1) quartz veins that are parallel to the bedding in the limestone and carry predominantly silver values, (2) veins along the contact of the sedimentary rocks and rhyolite dikes with values predominantly in gold, and (3) thin veins of quartz carrying silver-bearing galena and cerrusite in granite along joint fractures parallel to the bedding of the surrounding rocks. Other minerals present in small amounts are siderite, calcite, hematite, and wad.

C.1.10 Ellendale Mining District (including South Monitor Hills)

The Ellendale mining district, also known as the Salisbury mining district, is located about 31 miles east of Tonopah, and encompasses part of the southeastern end of the Monitor Range south of U.S. Highway 6. The Ellendale mining district is about 3 miles west of the corridor. An area of active exploration is about 6 miles west of the corridor (NBMG, 2003) and is referred to as the South Monitor Hills area in this report.

History of Discovery, Exploration, and Mining. The Ellendale mining district was discovered in 1909 and is noted for its past gold production, but it had also produced silver, some copper, and some barite in the 1930s. The initial discovery in the district occurred when leaf gold was reported to coat a small fracture in a small pit located by Jim and Ellen Clifford in 1909. It yielded about 60 sacks of high-grade ore, each worth about $1,000. The figure given by Ferguson (1917) for rich ore produced in 1909 was about $40,000. Conflicting data indicate that Ellendale declined by 1912 (Paher, 1970) or at least by 1915 (Kral, 1951). Small amounts of barite were produced from the Jumbo mine from 1931 to about 1960.

Although there is no record of historical production from the South Monitor Hills area, more recent exploration for precious metals has defined a precious-metal resource in that area. The following information was obtained from the NBMG (2003). Golconda Resources Ltd. drilled on the South Monitor property and successfully intersected a quartz/adularia gold vein system. Assay results indicated that drilling intersected the veins high in the system, and they could potentially grade into a high-grade bonanza vein system below the level intersected by drilling. A subsequent phase of diamond drilling is planned to try to intercept these veins at greater depth. At Monitor Flat, the initial drill program was successful in outlining a large hydrothermal gold system. The property lies on the gravel-covered southern slope of the Monitor Range and has about 1 percent outcrop that consists of three small hills. Golconda will employ geochemical and geophysical methods in the next phase of exploration to try to outline potassic alteration zones, which could contain substantial gold mineralization. Golconda increased its claim holding from 540 acres to 1,740 acres. The following table summarizes ore reserves/resources and production history at the South Monitor property as provided in the NBMG (2003) report (in the Table "opt" means *ounces per ton*).

SOUTH MONITOR HILLS
ORE RESERVES/RESOURCES AND PRODUCTION HISTORY

Deposit Name	Reserves/Resources	Production History
South Monitor (west of Ellendale District)	1996: 250,000 OZ AU 1997: 14 million tons, 0.026 opt Au, 0.12 opt Ag	(no data provided in reference)

Notes:
Au = gold
opt = ounces per ton

According to the Golconda Resources Ltd. website (Golconda Resources Ltd., 2004), over 130 holes have been drilled in the South Monitor Hills. Drilling has outlined strong alteration and erratic low-temperature gold mineralization in an area exceeding 2 square miles. Golconda Resources Ltd. drilled three holes in September 2004 to test for bonanza vein-type feeder zones at depth. These zones can grade around 1 oz. gold/ton and 10-oz. silver/ton, and are characterized by strong potassic alteration.

The bonanza veins occur parallel to each other in an area more than 400 feet wide. Their length could be over 5,000 feet, as at both ends silicified and gold-mineralized outcrops indicate the continuation of the gold-mineralized system. The large size of the altered and mineralized area, and the possibility that the veins could continue for a mile in length, gives this property the potential to contain significant economic mineralization. Seven diamond drill holes are planned to intersect the veins at a depth of around 750 feet.

Generalized Geologic Description. Geology of the Ellendale mining district is complex and generally consists of sequences of Paleozoic and Tertiary rocks that are locally mineralized. Their stratigraphic sections have not been fully established (Kleinhampl and Ziony, 1985).

The oldest strata in the district consist of quartzitic siltstone, quartzite, phyllitic shale, and limestone of Late Precambrian (?) to Early Cambrian age. These strata crop out near and on the flanks of the highest peak, which has an elevation of at 7,281 feet. Some of the Precambrian and Cambrian strata at Ellendale are grouped with the Zabriskie Quartzite, et al. are grouped with the phyllitic shale unit.

The Tertiary rocks are of diverse origin and composition and include rhyolitic to basaltic andesite flows, dikes, and plugs, as well as rhyolitic to rhyodacitic welded tuffs, tuffs, and tuffaceous sedimentary strata. The plutonic bodies exposed in the district include Tertiary quartz diorite and Late Cretaceous or Tertiary hornblende biotite diorite porphyry.

The extensive host rocks for the main gold deposits at the Ellendale mine and vicinity are rhyolite plugs and domes, irregular masses, and dikes of uncertain stratigraphic position. Small aphanitic to porphyritic dacitic and andesitic plugs and dikes intrude the rhyolite, and even some of these young intrusive rocks are altered.

The Paleozoic rocks are cut into a series of imbricate plates by low-angle faults. The thrust plates may be related to the mid-Paleozoic Antler orogeny. Numerous steep Tertiary faults disrupt the Paleozoic and Tertiary rocks, and some faults place Tertiary rocks against Paleozoic rocks. The main part of the Ellendale mining district is perhaps best described as a volcanic center in which the intrusion of rhyolitic to dacitic dikes and plugs and the formation of protrusive domes were the last events of the sequence. The metamorphosed Paleozoic strata in the southeastern part of the district are believed to conceal a shallow pluton.

Mineral Occurrences. Gold has been the most valuable commodity produced in the district, and some of the ore was quite rich. The richness of the ore indicated that the native metal must have occurred in some of the veins and leaf gold-coated fractures. At the Ellendale mine and vicinity, the rhyolite host rock is sheared and fissured mainly along a plane striking generally northeasterly and dipping about 50 degrees southeast. The fault and fissure zones, from several inches to a few feet, are locally tight and contain only a little gouge or iron stain, while in others several feet of gougy, brecciated material rests against a smooth footwall.

Barite deposits at the Jumbo mine are described as replacement deposits in a 30-foot-wide limestone underlain by a quartzite-shale sequence, all of which strike northwest and dip about 50 degrees southwest. The ore body is irregularly lenticular, feathers out laterally, and has apparently replaced the Paleozoic strata.

C.1.11 Golden Arrow Mining District

The Golden Arrow mining district, also known as Blake's Camp, is just west of the Kawich Range, about 50 miles east of Tonopah. The northwestern part of the Golden Arrow mining district abuts the corridor.

History of Discovery, Exploration, and Mining. Blake's Camp was discovered in 1905, the same year that the prospects at Golden Arrow were being explored. The production of the camp has been small; a few tons of ore were shipped from the Cotter property to the West End Mill at Tonopah in 1916 (Lincoln, 1923). Additional historical information regarding the district was not identified.

It is unknown when the mining district was discovered, but by about 1916, most of the exploration had been done, and there had been a small amount of gold and silver production from pyrite-metal-bearing quartz veins and veinlets hosted in rhyolitic tuffs and andesites. Silver appears to be the dominant metal in this system. High silver-to-gold ratios are anticipated, similar to those found in the Clifford and Bellehelen districts to the north (Cornwall, 1972; Kleinhampl & Ziony, 1984).

The best available data indicate that the Golden Arrow, Gold Bar, and Desert shafts are pre-1917 in age. There has been intermittent exploration and development since the early 1900s, including exploration during the 1940s on the Jeep claims (2 miles east). Most of the activity in this district is associated with more recent exploration work, where drilling by a series of major and junior mining companies over the past 10 to 15 years has identified about 350,000 oz. of gold (silver mineralization estimates are unknown) hosted in altered volcanic rocks. A precious-metal resource continues to be identified and expanded at this project via work completed by Kennecott in the early 1990s, to present activity by the current exploration company (Ann Carpenter, pers. comm., 2004).

In June 2004, BLM Tonopah personnel indicated that a junior Canadian mining company recently drilled in this district and identified small gold resources in this area. According to the NBMG (1997), Tombstone Explorations acquired the Golden Arrow project (composed of 16 patented and 419 unpatented claims) from Kennecott Explorations and commenced drilling late in 1997. Previous operators estimated resources of 11.3 million tons at 1.34 grams of gold per ton from two zones at Golden Arrow.

According to information provided in NBMG (2003), Phase II drilling was underway on the Pacific Ridge Exploration Ltd. Golden Arrow property. The 2003 Phase II program called for about 25,000 feet of drilling on two high-grade, epithermal, gold-vein feeder systems within the Gold Coin and Hidden Hill Zones, as well as initial drilling of the large, recently discovered Sunrise target.

The following table summarizes ore reserves/resources and production history at the Golden Arrow property (NBMG, 2003) (in the Table "opt" means *ounces per ton*).

GOLDEN ARROW PROPERTY
ORE RESERVES/RESOURCES AND PRODUCTION HISTORY

Deposit Name	Reserves/Resources	Production History
Golden Arrow	1997: 12.4 million tons, 0.039 opt Au resource	(no data provided in reference)

Notes:
Au = gold
opt = ounces per ton

According to a 27 April 2004, news release issued by Pacific Ridge Exploration Ltd., the Board of Directors of Pacific Ridge Exploration Ltd. advised Nevada Sunrise LLC, on 27 April 2004, that Pacific Ridge would not be proceeding with further work at the Golden Arrow property located in Nye County, Nevada, and accordingly, the option agreement between Pacific Ridge and Nevada Sunrise was terminated effective 27 April 2004. Pacific Ridge's decision to relinquish the Golden Arrow property was based on exploration results not meeting corporate objectives (Pacific Ridge Exploration Ltd, News Release, 2004).

Generalized Geologic Description. The very small district production of gold and silver came from pyrite-bearing veins that occur along faults in rhyolitic tuffs of White Blotch Spring and in andesite. The country rock at Blake's Camp is Tertiary rhyolite. At Golden Arrow, andesite has been faulted into contact with rhyolite.

Mineral Occurrences. At Blake's Camp, a fault zone in the rhyolite has been crushed, contains free gold, and has been more or less iron and manganese stained. At Golden Arrow, ore occurs along a fault between andesite and rhyolite and in veins associated with it, principally in the rhyolite. The wall rock near the fissures is silicified. The ore consists of quartz veinlets in which pyrite is the chief metallic mineral. Native gold occurs in a finely divided state and is alloyed with silver; in some of the ore, the silver values exceed the gold (Lincoln, 1923).

C.1.12 Bellehelen Mining District

The Bellehelen mining district is at the northern end of the Kawich Range, about 50 miles east of Tonopah. The district is within 1.5 miles of the corridor.

History of Discovery, Exploration, and Mining. The first discovery of gold in the district was in 1904. Interest in the district remained strong into 1907, and the best mining years were 1909 and 1910. An unconfirmed production of $500,000 by one operator sometime before the 6-year period was reported by Paher (1970). The Pacific States Mining and Milling Company started a large operation and produced about $117,000 between 1917 and 1921 before merging with the Tonopah-Kawich Mining Company to form the Bellehelen Merger mines in 1922. They intermittently operated a 50-ton cyanide mill until closure in 1927.

The recorded silver and gold production was only $29,473 from 438 tons in 1918 and is said (Kral, 1951) to have come from the Doreen group of claims, which were first worked around 1915. Kral (1951) also reported that $4,000 worth of gold ore was shipped in 1935 from the Peterson mine, which lies just west of the Bellehelen Merger.

Based on the July 2004 initial field reconnaissance (Shannon & Wilson, 2005a), there appear to be relatively recent drill roads and evidence of recent exploration in the central part of the district in the vicinity of the historical mine workings. New 2-inch by 2-inch wooden claim posts were observed at the mouth of the canyon leading up to the main mine area. According to BLM records, there is a Plan of Operation and Notice to Operate filed for an area near the front of the range to the northwest; however, indications of drilling in this area were absent in July 2004 (Shannon & Wilson, 2005a).

Generalized Geologic Description. The host rocks for the silver deposits are Tertiary welded to non-welded ash-flow tuffs and some bedded air-fall tuffs. These tuffs underlie most of the mountainous terrain at the northern end of the district. The rocks are rhyolitic to rhyodacitic in composition. The ash-flow tuffs are commonly silicified and argillized in the vicinity of the workings, but the Tertiary intrusive rock is relatively fresh and exhibits a glassy margin.

The northern Kawich Range is inferred to be a resurgent caldron modified by basin-and-range faults. The large intrusive body may represent a shallow part of an inferred magma system that existed beneath much of the northern Kawich Range and may have been responsible for the resurgence.

Northwest-trending lineaments, inferred to be faults, about coincide with the belt-like distribution of the mines and prospects in the district. These northwest-trending features form a segment of the Kawich-Toiyabe lineament that continues northwestward for about 60 miles. Part of this major lineament at and in the vicinity of the Bellehelen Merger contains closely spaced east-trending fissures that are cut by north-trending fractures and may be filled with quartz (Kleinhampl and Ziony, 1985).

Mineral Occurrences. The Bellehelen Merger is the major mine in the district, and was developed with several thousand feet of workings on several silver-bearing quartz stringers in fissures. The stringers, each 3 to 4 inches wide, were distributed over an area about 15 feet wide at the surface and joined at depth to form a more persistent and wider vein. The vein yielded oxidized ore above the 250-foot level of the mine and contained so much sulfide below that level that the ore required smelting. Comb quartz, often containing sparsely disseminated, gray, submetallic material and hematite, fills some of the structures and contains the ore deposits.

The Peterson mine to the west of the Bellehelen Merger ground had ore in pipes and shoots. Silver, chiefly as cerargyrite, and some gold occurs in 2- to 3-inch-wide veins (Kleinhampl and Ziony, 1985).

C.1.13 Clifford Mining District

The Clifford mining district is located about 2 miles south of U.S. Highway 6 in Stone Cabin Valley, about 6 miles southwest of Warm Springs. The district overlaps part of the corridor.

History of Discovery, Exploration, and Mining. According to Sawyer (1931) and Kral (1951), the first silver discovery in the area was made in 1906. The town, whose name was changed to Helena in 1907 and then back to Clifford, had a peak population of 500 in 1908. The camp declined thereafter, with intermittent activity continuing at the Clifford property since that time. Reported production from the district ranges from none to more that $500,000.

In 1917, most of the work in the district had been done in the near-surface oxidized ores, and the richest streaks were profitable for only a few feet from the surface (Ferguson, 1917). As described by Kral (1951), the Clifford mine consisted of a 300- and a 400-foot-deep vertical shaft. It was operated intermittently by the Western Gold Corporation and lessees from 1925 to 1946, with 260 tons of ore containing 2 oz. of gold and 4 oz. of silver per ton shipped in 1930. Parts of the dumps were shipped to a smelter in 1941 and 1946. The last known lessees were on the property in the mid-1960s for at least six months.

The following information was obtained from NBMG (2003). Castleworth Ventures, Inc. began fieldwork at their Clifford property in preparation for a planned drilling program. The property consists of 135 claims totaling 2,700 acres centered on the Clifford mine. Initial fieldwork will include follow-up surface sampling and mapping combined with a very low frequency (VLF) electromagnetic geophysical survey to develop detailed drill targets on the property. While the district has no official published production, ore is known to have been shipped to the Merger Mill at Bellehelen and the West End Plant in Tonopah. Estimated gold production is in the 15,000- to 20,000-oz. range from a number of shallow shafts and cuts, with two shafts in excess of 200 feet.

According to the 12 January 2004 news release, Seabridge Gold, Inc. reported that its joint-venture partner, Castleworth Ventures, Inc., commenced a Phase 1 drilling program at the Clifford project in Nye County, Nevada. Drilling at Clifford targeted two types of deposits. The first target is near-surface mineralization, since previous near-surface sampling strongly suggested an oxide target with attractive grades within Clifford Hill. This concept was to be tested with both shallow holes on moderate spacing, as well as with the shallower portions of the deeper holes. The second target to be tested is the feeder zones, which have acted as conduits to the near-surface mineralization. The news release stated there is good evidence that the mineralization of Clifford Hill is the surface expression of the intersection of two highly mineralized, regional-scale structures that provide a very compelling high-grade target at depth (Seabridge Gold, Inc., 2004).

According to the February 2004 Castleworth Ventures, Inc. new release, an exploration drilling program consisting of 17 holes was completed. To date, 11 of the first 14 holes encountered anomalous to high-grade gold mineralization. One hole, CL10-04, intersected a 10-foot interval containing 1.73 oz.–per-ton gold with 6.00 oz.-per-ton silver from 150 to 160 feet. Castleworth Ventures, Inc. plans to continue its program with additional drilling intended to further define this new discovery (Castleworth Ventures, Inc., 2004).

The Clifford Hill prospect, located near the center of the Clifford project, is one of several shallow, high-grade targets on the property. The property consists of 206 claims, bringing the total current property position to over 4,000 acres. The project is part of the Thunder Mountain Joint Venture between Castleworth and Pacific Intermountain Gold, a 75 percent-owned subsidiary of Seabridge Gold Corp. (Castleworth Ventures, Inc., 2004).

Generalized Geologic Description. Clifford Hill is primarily comprised of thin-bedded rhyolitic sandstone and pyroclastic rocks, rhyolite tuff, and breccia, while andesite outcrops to the west.

Mineral Occurrences. The ore consists of heavily iron-stained tuff cut by small quartz veins that contain small, irregular masses of limonite. Cerargyrite, native silver, and jarosite occur in the rich ore, with rare specks of silver sulfide and pyrite and small amounts of pale yellow gold. Sulfide ore has been mined in rhyolitic agglomerate at its contact with the andesite, which appears to have been faulted against it. The agglomerate has been highly pyritized. The rich ore contains less pyrite and is cut by quartz in the vugs, in which has been deposited stephanite, pyrargyrite, and proustite, with pyrite and more rarely marcasite, while silver sulfide minerals also occur in minute streaks between the quartz and the wall rock (Kleinhampl and Ziony, 1985).

C.1.14 Tybo Mining District

The Tybo mining district is located in the Hot Creek Range, and extends from Warm Springs on the south to Hot Creek on the north. The district is also known as Hot Creek, Keystone, Empire, Argenta, Rattlesnake Canyon, Milk Spring, and Tybo. The southern end of the Tybo district overlaps the corridor.

History of Discovery, Exploration, and Mining. According to Lincoln (1923), the Hot Creek section of the district was discovered in 1865 by a Native American who showed it to white prospectors in 1866. By 1868, two 10-stamp mills operated. The Tybo section was discovered in 1870 by Gally and Gillette. A smelter was erected in 1874, and the Tybo Company built another furnace in 1875 and another 20-stamp mill. For a number of years, Tybo produced large quantities of silver and lead with less gold and was the most prosperous district in Nye County. A 75-ton concentrator was built by The Louisiana Consolidated Mining Co. in 1917 and operated in 1918. In 1919, a floatation plant and smelter were installed, which operated in 1920. These operations were not successful and the company was forced to shut down.

Leasing at Tybo proper was almost continuous from that time until about 1951, and 29,139 tons of ore with a value of $393,229 was produced. Recent exploration efforts include the rehabilitation of shafts in 1961, geophysical studies in 1971, development drilling in 1972, and other exploration activities in 1979 (Kleinhampl and Ziony, 1985).

About 800,000 tons of base-metal silver ore were verified by drilling in 1965 on the Dexter property by Pinex mines. The ore was reported to be within 350 feet of the surface (Eureka Miner, 1972).

Boulder Minerals planned to spend $50,000 to earn 75 percent interest in the Tybo West silver-gold property located 50 miles northeast of Tonopah (NBMG, 2000). Exploration targets are large, sediment-hosted manto and chimney-style deposits with high-grade values. Six targets were identified from basic prospecting. Subsequent *Nevada Mineral Industry Special Publications* (NBMG, 2001, 2002, and 2003) do not mention activity in the Tybo mining district, and it is not known if the planned mineral exploration was conducted.

Generalized Geologic Description. Paleozoic sedimentary strata with an approximate thickness of 10,000 to 12,000 feet are exposed along the eastern flank of the Hot Creek Range in the heart of the Tybo mining district. The Paleozoic rocks are unconformably overlain by Tertiary volcanic rocks. The Paleozoic sequence hosts the main silver-bearing Tertiary dikes of the district, which follow preexisting faults in the Paleozoic rocks.

Mineral Occurrences. Silver with some gold occurs chiefly in an argentiferous lead-zinc sulfide ore that forms tabular vein-like bodies along faults. The ore replaces quartz latite porphyry dikes to a large extent, and replaces limestone to a lesser extent. Manganese oxide with quartz and manganiferous calcite is present in many of the veins.

Pyrite, sphalerite, galena, chalcopyrite, pyrrhotite, and arsenopyrite are the primary sulfide minerals. Pyrite is the most abundant sulfide, and at least some sulfide existed in all the ore.

C.1.15 Mercury Mountain Mining District

The Mercury Mountain mining district is in the southwestern Hot Creek Range, and is often included as part of the Tybo mining district. The southern end of the mining district is about 2 miles north of the corridor.

History of Discovery, Exploration, and Mining. Mercury was discovered in 1929 in M and M Canyon, southwest of Tybo. Baily and Phoenix (1944) reported a yield of 189 flasks and 59 flasks at the A and B and the M and M mines, respectively, to the end of 1943. Additional small production in the early 1950s and a very little in the early 1960s at these properties, and possibly from other nearby small deposits (Break mine), may have amounted to 50 to 100 flasks (estimated). The total amount of mercury produced, though uncertain because good annual data are absent, may be on the order of $50,000 (prices at the time of sale).

Generalized Geologic Description. Mercury deposits are restricted to the Tertiary rocks in the vicinity of M and M Canyon. Host rocks of the main deposit are late Oligocene and early Miocene rhyolitic to rhyodacitic ash-flow tuffs that are faulted, gently to moderately tilted, and argillized. The mined ore bodies were small, and the largest stope at the A and B property was 20 by 30 by 20 feet. A larger stope (65 by 25 by 25 feet) is in the upper adit of the M and M mine. An unaltered and lithified part of the Shingle Pass Tuff caps the mineralized units.

Mineral Occurrences. Mineralization in the district is of two types: disseminations in discontinuous, irregular fractures and adjacent country rock, and deposition in through-going fractures near faults. Talus blocks of silicified breccia indicate that deposition was also in fault zones in the upper devitrified, densely welded tuff (Kleinhampl and Ziony, 1985).

The disseminated deposits are associated with clay at the base of Shingle Pass. The clay is kaolinite, and the main minerals are cinnabar and metacinnabarite with some native mercury, calomel, and livingstonite. The fracture-filling deposits occur in the partly welded devitrified basal zone, and the ore mineralogy is the same as in the disseminated deposits (Kleinhampl and Ziony, 1985).

C.1.16 Reveille and Arrowhead Mining Districts

The Reveille mining district includes the area on both sides of the northern part of the Reveille Range. It includes the New Reveille camp on the western side of the range, and the Old Reveille on the eastern side. The Arrowhead mining district is adjacent to the northern end of the Reveille mining district. The closest part of the corridor is 5 miles west of the Reveille mining district.

History of Discovery, Exploration, and Mining. The Reveille mining district was organized around the Old Reveille camp in 1867 shortly after the first mineral discovery in 1866 by a Native American named Indian Jim (Lincoln, 1923), who showed it to prospectors. A 5-stamp mill built in 1867 and a 10-stamp mill built in 1869 operated for a short time, but the district is not credited with much production until 1875. During four years of operation of this mill, nearly half the district's total yield was obtained. Mining began at the New Reveille about in the 1880s, and a large amount of ore was shipped at that time. Kral (1951) reported that most production between 1911 and 1950 is unrecorded and came from the New Reveille.

Gold Creek Mining Company began exploratory drilling in the Reveille mining district in early 1977 and was strip mining, crushing, and stockpiling material on heap leach pads in the winter of 1978-1979. In 1980, three open-pit mines (the Gila, West Reveille, and South Reveille) were operating in the district. The properties passed to the Gila Mines Corporation, which conducted exploratory drilling in 1982.

The Arrowhead mining district was originally referred to as the Needles district in 1919 and had a short productive life, with the majority of production ending around December 1921 (Kleinhampl & Ziony, 1985). The Arrowhead mine has drifts on four levels off the 345-foot-deep inclined shaft. The Arrowhead Extension on the south has a two-compartment shaft 150 feet deep with a vein opened at 55 feet. A few prospects in the Tertiary rocks are collared in structurally lower and stratigraphically older rocks, as with the propylitized andesite. Similar prospects occur outside the arcuate main altered zone (Kleinhampl & Ziony, 1985).

There appears to be recent activity in the area based on information provided by Tonopah BLM, indicating that two separate Notices to Operate were filed for the Arrowhead mining district in 2003.

Generalized Geologic Description. Paleozoic and Tertiary rocks underlie the Reveille mining district and, in contrast to many other districts in northern Nye County, the Tertiary stratigraphy and structures appear to be even more complex than those of the Paleozoic.

The exposed Paleozoic section consists of about 4,700 feet of sedimentary strata. Basal exposures are of the upper part of the Antelope Valley Limestone of the Pogonip Group, and are overlain successively by other well-known formations of the eastern Nevada carbonate assemblage.

Tertiary volcanic rocks generally lie unconformably on and are faulted against Paleozoic rocks. They consist of welded ash-flow tuffs and lavas, as well as lesser amounts of air-fall tuffs, tuffaceous sedimentary strata, and debris beds, including landslide material. Tertiary dikes and sills are also present. Several of them cut the exposed Paleozoic strata, but most of the abundant exposed dikes, sills, and miscellaneous intrusive bodies cut other Tertiary rocks. The composite Tertiary section totals about 13,000 feet in thickness. Original depositional lenticularity and erosional removal account for drastically different thicknesses from place to place, and at any one locality the section is generally no more than a few thousand feet thick.

The northern half of the Reveille Range consists essentially of a gently west-tilted core block of Paleozoic strata broken into a separate megamosaic and is bounded on all sides by faults that separate the core from generally less intensely but complexly faulted Tertiary rocks. The faults within the core block are inferred to be mainly normal faults related to basin-and-range tectonism. Structure of the Tertiary rocks appears to be related to volcanism modified by typical normal faulting associated with basin-and-range tectonism.

At the Arrowhead mining district, Tertiary volcanic rocks are in an area of complex, unusual tectonic features. Surficial mine workings in the altered shear zones are commonly developed in Miocene welded tuffs that form a structurally intermediate plate of localized thrust and overlie Oliogocene welded tuff (intracaldera Monotony Tuff). Some of the deeper workings may penetrate the plate, and some of the workings at a few mines, including the Arrowhead mine, are developed partly in a post-thrust rhyodacite intrusive mass. The 345-foot-deep Arrowhead may have passed entirely through the Tertiary section into the underlying Paleozoic rocks, because the small amounts of segregated material on its extensive dump are calicitized quartzite and pyritized calc-hornfels. Alternatively, the pre-Tertiary rocks may represent faulted slivers or breccia fragments related to the major transcurrent faults that cut the area (Kleinhampl and Ziony, 1985).

Mineral Occurrences. The Reveille mining district was originally prospected for gold and silver. Major silver production came mainly from the Gila mine at the Old Reveille camp, and the New Reveille at the New Reveille camp. Another property, the Antimonial, was mined for antimony minerals. Early reports (Ball, 1907) noted that near-surface ore at both the Gila and New Reveille mines was oxidized and consisted mainly of cerargyrite and cerrusite. Galena, malachite, azurite, and a gangue of quartz and gypsum were also noted. Stibnite constituted the main ore mineral at the Antimonial mine.

The New Reveille camp yielded silver-bearing lead and zinc ores, possibly argentiferous varieties of galena and sphalerite, that contained sporadically distributed gold averaging 0.10 oz. per ton. At the Gila mine at the Old Reveille camp, gossan, boxworks, and silicified masses of limestone commonly fill steeply northwest-dipping shear zones. Iron oxides, sphalerite, barite, and occasionally secondary molybdenum minerals are also present. At the Antimonial mine, Tertiary rock hosts a major north-dipping, stibnite-bearing vein and several other veins, with quartz and gouge characterizing the main vein. Pods in the veins form mineable lenses, and antimony oxide and oxysulfide and pyrite are common. Gold, silver, and selenium are also present (Lawrence,, 1963).

Pyritized zones are most characteristic of metallization in the district and are well developed at the Arrowhead mine and vicinity. The dump of the Arrowhead mine is composed mostly of altered rhyodacite, some of which contains disseminated pyrite. The welded tuffs of the arcuate-altered zone are pervasively and intensely bleached, argillized, and silicified, whereas many of the volcanic rocks outside the zone are less intensely altered. At the Arrowhead mine, two ore shoots, 3 to 8 feet wide in a replacement vein, contained silver sulfide ore that averaged \$24 to \$50 a ton in 1922 and 1923 (Kleinhampl and Ziony, 1985).

C.1.17 Eden Mining District

The Eden mining district is located at Eden on the eastern slope of the Kawich Range, about 55 miles east of Tonopah. The eastern boundary of the district is 2 miles west of the corridor, but the majority of historical mining was 4 to 5 miles west of the corridor.

History of Discovery, Exploration, and Mining. The Eden mining district was discovered by John Adams in 1905. Little else is known about the discovery, exploration, and mining of the district. There is ongoing, small-scale mining at the 5 Jokers mine by Mr. Neighbors and other family members (Ann Carpenter, pers. comm., 2004).

Generalized Geologic Description. Welded to non-welded Tertiary ash-flow tuffs and some bedded air-fall tuffs underlie most of the mountainous terrain in the district and are the host rocks for the ore deposits. A large, Tertiary, intrusive mass forms the highest part of the Kawich Range. The ash-flow tuffs are commonly silicified and argillized in the vicinity of the workings, but the intrusive rocks are relatively fresh and exhibit a glassy margin. The northern Kawich Range is inferred to be a resurged caldron modified by basin-and-range faults (Ekren et al., 1976). The large intrusive body may represent a shallow part of an inferred magma system that existed beneath much of the northern Kawich Range and may have been responsible for the resurgence.

Northwest-trending lineaments, inferred to be faults, about coincide with the belt-like distribution of mines and prospects in the district. The northwest-trending features form a segment of the Kawich-Toiyabe lineament that continues to the northwest for about 60 miles (Ekren et al., 1976).

Mineral Occurrences. The ore deposits consist of three mineralized zones (Ball, 1907). They vary from quartz veins to silicified rhyolite containing numerous quartz stringers. Gold occurs in quartz of a flinty variety, and silver occurs as ruby silver, native silver, and hornsilver. A small amount of pyrite is present in the quartz and the altered rhyolite.

C.1.18 Queen City Mining District

The Queen City mining district, also known as the Black Hawk (sometimes referred to as the Black Hawk district) and Kawich districts, is in the low hills at the southern end of the Quinn Canyon Range near Queen City summit. The northwestern boundary of the district is adjacent to the corridor.

History of Discovery, Exploration, and Mining. Mercury was discovered in the area in 1929. About 80 flasks of mercury were produced between 1930 and 1960, mainly from the Black Hawk mine. In 1938, silver-mercury deposits were prospected at the Oswald mine, located on the western edge of the district, and about 14 flasks of mercury are reported to have been produced from the property.

In 1983, a large part of the district was staked and prospected for disseminated gold (Tingley, 1984). Exploration for precious metals has continued intermittently and, in 1990, most of the eastern part of the district was staked by Kennecott Exploration Co. (Tingley, 1991). More recently, Pegasus Gold, Inc. was conducting exploration efforts in the area.

During the October 2004 initial field reconnaissance (Shannon & Wilson, 2005a), mining claim posts were observed, dated December 2003, and referred to as the Black Hawk Claims. The claims were identified as having been by Beta Minerals USA, Inc., with an Oregon address. Based on information obtained from the Beta Minerals, Inc. website, Beta Minerals, Inc. controls 100 percent interest in the 47 unpatented lode mining claims located in 2003 and 2004 that cover the Black Hawk property. Beta Minerals, Inc. conducted a rock and soil sampling program on the claims in the first half of 2004, with geological mapping and interpretation of the resulting anomalies planned for the fall of that year.

As indicated on their website, gold mineralization on the Black Hawk property occurs within hydrothermally altered, silicified and brecciated limestone and volcanics along their faulted contact. The mineralization occurs along the faulted boundary between a volcanic caldera to the east-folded limestone and calcareous shale of the Cambrian Windfall Formation. Selective jasperoid silicic replacement of the folded and fractured sedimentary rocks forms stratabound gold-bearing zones. The geological target model at the Black Hawk property is a disseminated Carlin-style gold deposit similar to the Windfall Formation-hosted gold-silver mineralization seen at mines in the Eureka and other central Nevada mining districts. Drill targets are to be defined by Beta Minerals, Inc. based on results of their 2004 field program.

The following geologic information was also obtained from the Beta Minerals, Inc. website. Hydrothermal activity associated with flow domes along the ring-fracture zone of the Tertiary caldera formed mercury-bearing, pipe-like breccia bodies on high-angle faults with silicic replacement of the host rock and matrix-supported breccias. Silicic and iron-stained argillic alteration of limestone, shale and sandstone units extend out into the formations and are cut by these northeast-southwest and east-west structures. At least one of these shears can be traced from the sediments to the northeast into the rhyolitic tuffs for a distance of over 1½ miles. The host rocks are cut by quartz-adularia veining within argillic-altered shear zones. The shear zones exhibit three common trends: north-south, northeast-southwest, and east-west.

Generalized Geologic Description. The part of the Queen City district that hosts the ore bodies is underlain by the Oligocene Monotony Tuff, a major rhyolite ash-flow sheet containing abundant quartz phenocrysts.

Mineral Occurrences. The Monotony Tuff weathers to a brownish outcrop and has undergone very weak argillic alteration. Narrow silicified ribs have formed along north-trending fault zones in several widely spaced areas. The widest of these zones is about 3 feet and consists of hairline quartz veinlets with brown limonite-after-pyrite.

C.1.19 Freiberg Mining District

The Freiberg mining district, also known as the Worthington, Freyberg and Freiburg district, is near the northern end of the Worthington Mountains. The northern end of the district abuts the corridor, but the majority of historical mining was about 1 to 2½ miles east and south of the corridor.

History of Discovery, Exploration, and Mining. In 1865, a Native American showed the area to two prospectors, who then organized the Worthington district. In 1869, another prospecting party found ore-grade material and reorganized the district under the name Freiberg. The earliest record of production from the district was made in 1919, when a little oxidized iron ore containing silver and lead was shipped from the roadside property. In 1921, one lot of lead-silver ore was shipped from an unnamed property (Lincoln, 1923). The total recorded production from the district is only $18,000 (Lincoln, 1923). Indications of relatively recent mining and heap-leach activities were observed during the July 2004 initial field reconnaissance (Shannon & Wilson, 2005a).

Generalized Geologic Description. The geology of the Freiberg mining district consists of three structural elements, two of which are thrust sheets. The highest plate consists of west-dipping Ordovician rocks along the western side of the range south of the mineralized area. This plate has moved eastward over all the formations from the Pogonip Group in the mineralized area to the Scotty Wash Quartzite at the southern end of the range. At the northern tip of the range, the complexly faulted post-Pogonip rocks appear to be a remnant of a second thrust plate. The rocks beneath these plates contain the ore and comprise the third structural element. These rocks are intruded by two granite stocks and many granitic and lamprophyre dikes. Most of the limestone surrounding the stocks has been converted to marble or tactite, or has been silicified.

Mineral Occurrences. The mineral deposits of the district are of two types: (a) vein-like deposits of gold, silver, lead, and zinc, and (b) scheelite deposits in tactite. Nearly all the production has come from small, irregular replacement lenses or veins along faults in limestone. Galena and pyrite are the only sulfides seen on the dumps. Most of the pyrite is oxidized and some deposits have well-developed gossan, which contains a green substance that resembles scorodite. These deposits include both gold veins and silver-lead veins.

The scheelite deposits are near the western flank of the range on the western edge of the granite stock. Scheelite is disseminated through a light-green tactite that contains some wolframite.

C.1.20 Quinn Canyon Mining District

The Quinn Canyon mining district, also known as the Willow Creek district, is in the center and southeastern side of the Quinn Canyon Range. The fluorite district, the Sharp mining district on the eastern side of the range, and the Willow Creek area on the western slope of the range, were included by Kral (1951) et al. into a large Willow Creek district, which covered much of the southern Quinn Canyon Range. The Sharp district is briefly addressed separately in this report. The southeastern boundary of the Quinn Canyon district overlaps the corridor, but the majority of historical mining was about 6 miles from the corridor. The largest fluorspar deposits in the state of Nevada occur in this mining district.

History of Discovery, Exploration, and Mining. Fluorite was discovered west of Cherry Creek in 1934. Other fluorite deposits were discovered to the west near Quinn Canyon in 1941. Deposits to the south, in Lincoln County, were staked in the early 1950s (Papke, 1979). While only about 29,500 tons of fluorspar has been produced from the Quinn Canyon fluorite district, it contains the largest concentration of fluorspar deposits in Nevada (Papke, 1979).

Generalized Geologic Description. The Quinn Canyon Range consists mainly of thick sections of Tertiary rhyolitic and latitic ash-flow tuff. Locally, these volcanic rocks display propylitic and silicic alteration, as well as broad bands of brecciation where they are cut by northeast- to east-trending dikes. Two small outcrops of Devonian carbonate rocks occur in the area: one east of the range front in the valley between the Quinn Canyon Range and the Worthington Mountains, and another about 5 miles to the northwest.

Mineral Occurrences. The prospects in the area are associated with a northeast-trending zone of brecciation and silicification in volcanic rocks. Most of the prospecting activity appears to have been for optical quartz, but the area has no doubt been examined for fluorite. One prospect exposes a small area of skarn mineralization.

C.1.21 Sharp Mining District

The Sharp mining district, also known as the Willow Creek district, is in the northeastern side of the Quinn Canyon Range in Nye County. Kral (1951), among others, grouped the Sharp district with the Quinn Canyon district to the southwest and the Willow Creek district to the northwest on the western side of the Quinn Canyon Range into a large area referred to as the Willow Creek district. The Sharp district occupies a small part of the northeastern end of this group of districts. The corridor is about 4 miles southeast of the Sharp district.

History of Discovery, Exploration, and Mining. The Roadside (Iron Cap) silver mine was located in 1918 and may have been the initial mineral discovery in the Sharp district. Production has been small, and the only report is of a 238-ton shipment from the dump in 1938-1939, perhaps worth a few thousand dollars.

Generalized Geologic Description. The Quinn Canyon Range consists mainly of thick sections of Tertiary rhyolitic and latitic ash-flow tuff. Locally, these volcanic rocks display propylitic and silicic alteration, as well as broad bands of brecciation where they are cut by northeast- to east-trending dikes. Two small outcrops of Devonian carbonate rocks occur in the area: one east of the range front in the valley between the Quinn Canyon Range and the Worthington Mountains, and another about 5 miles to the northwest.

Mineral Occurrences. About four base-metal deposits occur in the Sharp district. Limestone replacement mineralization containing bornite, chalcocite, chalcopyrite, galena, pyrite, copper carbonates, and iron oxides are commonly found along seams in faulted, tilted blocks of limestone.

C.1.22 Seaman Range Mining District

The Seaman Range mining district lies between Coal Valley and White River Valley in Lincoln and Nye Counties. The corridor is adjacent to the northern boundary of the district.

History of Discovery, Exploration, and Mining. Very little mining activity is evident in the Seaman Range. The Red Head claims on the western side of the range have been held by the Davies family since 1939, and minor amounts of mercury were produced from the property during the 1940s and 1950s (Gese and Harris, 1985). On the northeastern tip of the range, workings on the FNB claims appear to date from the 1920s or 1930s, but there has been no activity there for many years (Gese and Harris, 1985).

In 1955, Lincoln Uranium Co. was working on the Lucky Strike claim on the northwestern flank of the range, possibly in the same general area as the Red Head claims. They are reported to have drilled 11 holes totaling 647 feet (Garside, 1973). In the 1960s, Bear Creek Mining Co. carried out exploration work in the Timber Mountain Pass area (Gese and Harris, 1985).

The Seaman Range attracted interest for its disseminated gold potential early in the 1980s, and several large claim blocks were staked along the western edge of the range. Many areas were still being held by mining companies in 1990 (Tingley, 1991). Numerous, presumably older (white PVC) claim posts were observed in the Timber Mountain Pass area at the northern end of the Seaman Range during the June-July 2004 initial field reconnaissance (Shannon & Wilson, 2005a).

Generalized Geologic Description. The northern end of the Seaman Range is underlain by a thick sequence of Paleozoic rocks ranging from Silurian Laketown Dolomite to the Mississippian Joana Limestone and Chainman Shale. These rocks are overlain on the southwest by extensive intermediate to silicic ash-flow sheets. The northernmost part of a small volcanic center crops out in the west-central part of the range, south of most of the prospecting areas. Several sets of normal faults cut the Paleozoic rocks. Both the carbonate rocks and the volcanic rocks generally strike northwest and dip southwest.

Mineral Occurrences. Most of the prospecting activity along the western side of the Seaman Range has been carried out on large ledges of jasperoid that formed in the carbonate rocks along northwest-trending faults. Prospects on the eastern side of the range may represent gold-silver base-metal epithermal vein systems, where sedimentary and volcanic host rocks are cut by high-angle faults (DuBray et al., 1987).

C.1.23 Ely Springs Mining District

The Ely Springs mining district is located about 13 miles west of Pioche, on the western side of the Ely Springs Range. It is an unorganized silver-producing district that is also referred to as the Lone Mountain district. The southern boundary of the district is about 4 to 5 miles north of the corridor. The following information is excerpted from Tschanz and Pampeyan (1970) and ENSR Corp. (2004).

History of Discovery, Exploration, and Mining. Ore was discovered in the district before 1917 but the main mine in the district, the King Midas (Hedman) mine, was not discovered until 1943. Total production is about 7,000 oz. of silver, 800 pounds of lead, and 1,600 pounds of zinc.

Generalized Geologic Description. The district consists of complexly faulted upper Cambrian and Ordovician sedimentary rocks. Most of the faults are steeply dipping normal faults that strike north.

Mineral Occurrences. The King Midas mine is the main mine in the district and is the only part of the district with past production. The mine is in brecciated Upper Cambrian limestone on the hanging wall of a fault that strikes N. 15^0 W. and dips 45^0 to 50^0 E. The ore along the fault occurs in silicified breccia that has been stoped to a depth of 30 to 40 feet. Grades of a selected dump sample range up to 50 oz. of silver and 12 percent manganese per ton. About 300 feet south of the dump, silicified manganese-stained rock occurs along a fault that strikes N. 80^0 E. The breccia along this fault contains fragments of shale, limestone, and Eureka Quartzite (Tschanz and Pampeyan, 1970). Production figures suggest that the ore minerals are silver-bearing galena, sphalerite, and siderite, and that the ore body was probably a polymetallic replacement deposit (ENSR Corp., 2004).

C.1.24 Comet Mining District

The Comet mining district is on the southwestern side of the Highland Range about 10 miles west of Pioche. The corridor is about 3 miles south of the district boundary.

History of Discovery, Exploration, and Mining. The ores of the Comet mining district were discovered in 1882 (Lincoln, 1923), but production prior to 1895 is unknown. Silver-lead ore containing small amounts of gold and copper was shipped intermittently from the district between 1895 and 1898 and between 1913 and 1920. Most of this early production came from the Schodde mine, which produced about $125,000 during World War I (Lincoln, 1923).

The Comet mine was relocated in 1906, and although additional claims were staked in 1913, production before 1924 is not recorded. Silver, lead, zinc, gold, and tungsten were produced from oxidized ore in the Comet mine between 1925 and 1950. Between 1945 and 1951, 13,700 tons of sulfide ore were mined. Between 1947 and 1955, about 17,000 tons of low-grade manganese ore containing small amounts of silver, lead, and zinc from the Pan American mine were mined and milled for metallurgical testing. The total estimated value of the metals mined from the district is $764,100 (Tschanz and Pampeyan, 1970).

Relatively recent mining claims were observed in a section south of the main mining district during the October 2004 initial field reconnaissance (Shannon &Wilson, 2005a).

Generalized Geologic Description. The Highland Range consists of two structural elements. The first is the simple east-tilted fault block, which makes up the main part of the range. This block contains the oldest rocks exposed along the western side of the range, and has apparently been overridden by the second structural element, the Highland thrust plate. This thrust plate is composed largely of Upper Cambrian rocks, probably the Mendha Limestone.

The geology of the Comet mining district is fairly straightforward. The mineral deposits occur in the Prospect Mountain Quartzite, Pioche Shale, and Lyndon Limestone below the Highland thrust plate. Four veins, the largest of which is developed by the Comet mine, cut the quartzite and shale. These veins strike about N 60^0 W, dip nearly vertical, are as wide as 13 feet, and can be traced for about 1,400 feet. Fissures in the limestone at the Schodde mine have the same general strike and are parallel to several irregular lamprophyre dikes that contain some galena (Westgate and Knopf, 1932).

Mineral Occurrences. Quartz veins and bedded replacement deposits occur in the district. The primary ore in the quartz veins, principally the Comet vein, contains galena, sphalerite, pyrite, wolframite, scheelite, argentite, and gold. The oxidized ore contains plumbojarosite, cerrusite, and limonite. The Comet vein averages 6 feet in width and contains 4 ore shoots in the wider parts. A parallel fissure several hundred feet north of the Comet vein is reported to contain as much as 1.4 percent tungstate oxide (WO_3).

Bedded replacement deposits, 10 to 15 feet thick, occur in the lower part of the Combined Metals Member of the Pioche Shale at the Pan American mine and in or near the base of the Lyndon Limestone at the Schodde mine. The primary ore contains pyrite, sphalerite, argentiferous galena, and manganosiderite similar to the bedded replacement ore in the Pioche mining district.

C.1.25 Chief Mining District

The Chief mining district, also known as the Caliente mining district, is located on the eastern slope of the Chief Range, about 5 miles due north of Caliente. The southeastern boundary of the district overlaps the corridor. The northern boundary of the district is adjacent to the corridor.

History of Discovery, Exploration, and Mining. The ore deposits in the Chief mining district were probably discovered in 1868 shortly after the initial discoveries near Pioche. The district was organized in 1870 (Lincoln, 1923), and the Black Hawk ledge was worked by Raymond and Co. in 1871 and 1872. The district was inactive in 1875 and 1876, but 293 tons of ore were shipped to Bullionville near Panaca in 1896.

The next recorded activity was in 1907, and intermittent small-scale operations continued to about 1953. The total production from the district is only about $88,000 (Tschanz and Pampeyan, 1970).

Generalized Geologic Description. The Chief Range is composed largely of the Prospect Mountain Quartzite, which strikes northwest and dips about 25 degrees northeast. The Pioche Shale, Lyndon Limestone, and Chisholm Shale are faulted out by major thrust faulting in the Chief district where an Upper Cambrian, unfossiliferous limestone and dolomite unit rests in fault contact on the quartzite. The limestone and dolomite unit is partly metamorphosed by.the intrusion of dikes, sills, and plugs or diorite porphyry.

Breccia zones are present between the thrust plate of limestone and quartzite. They range from 10 to 40 feet thick, and are generally cemented by mylonitic material and iron oxides, or by quartz and other vein materials. Ore bodies occur in these breccia zones or in the quartzite as veins that generally strike N 15-20^0 W (Tschanz and Pampeyan, 1970).

Mineral Occurrences. The mineral deposits are in fissure veins in the quartzite or in the breccia zones between quartzite and the over-thrust carbonate rock. Some replacement of the quartzite and limestone and dolomite wallrocks has occurred along the fissures.

The principal metals are gold, silver, and lead. All the ore is oxidized, and galena is the only residual sulfide. Three types of veins, distinguished by their constituents, exist in the district (Tschanz and Pampeyan, 1970).

The type of vein that has the highest content of gold and silver is the arsenian type, like the veins in the Advance, Old Democrat, and Lucky Hobo mines. The ore is a massive, greenish to brownish, vuggy aggregate or arsenopyrite replaced by scorodite, which is in turn replaced by a micaceous mineral. Jarosite, descloizite, cerrusite, mimetite, and beudanite are also present.

The second and most productive type of vein is the non-arsenian type that occurs in the Gold Chief mine in thrust-fault breccia. The vein filling is a network of tabular barite crystals and scattered grains of galena. Colliform chalcedonic quartz replaces and veins the barite. Quartz, hemomorphite, mimetite, and manganese and iron oxides fill the interstices between the barite crystals in the ore. The gold and silver content of this type of vein is low.

The third type of vein forms the principal lead deposits. The veins include a pipe-like ore body in the Republic mine and an irregular cerrusite body in the Lucky Chief mine. The ore from the Lucky Chief consists of grains and nodules of cerrusite, powdery opal, and plumbojarosite, and lumps of iron and manganese oxides in fine-grained quartz.

C.1.26 Panaca Mining District and Area

The Panaca mining area is east of Panaca and about 1½ miles north of the corridor. The area contains a diatomite deposit about 0.5 mile east of Panaca, as well as two sections identified by the BLM LR2000 database as having Plans of Operation filed. Four non-contiguous sections in the Panaca Area were identified by the BLM LR2000 as having both Plans of Operation and Notices to Operate filed.

History of Discovery, Exploration, and Mining. The early history of the diatomite deposits in the district was not identified. A deposit located a short distance east of Panaca was developed in 1959 by Morgan and Bush, Inc., who operated a small plant in Panaca. The total production from this deposit is not known, but 512 tons of rocks valued at $15.39 per ton were shipped in 1952. The diatomite deposit and quarry were observed to be inactive during the October 2004 initial field reconnaissance (Shannon & Wilson, 2005a).

Areas in the eastern and southeastern parts of the Panaca area were identified in the BLM LR2000 database as locations of either Plans of Operation and/or Notices to Operate. These areas were visited during the October 2004 initial field reconnaissance; however, indications of activity were not observed (Shannon & Wilson, 2005a).

Generalized Geologic Description. Diatomite is widely distributed in the intravolcanic sedimentary rocks and in the lakebeds, but the only deposit that has been developed is in the Panaca Formation. These rocks are largely siltstone and clay shale and are not the lacustrine limestone of the Miocene age. The older lakebeds rest unconformably on all underlying rocks, but are in part equivalent to the thick tuff sequence in the Oak Spring Group.

The lacustrine rocks are white, pale-gray-green, light brown, and terra-cotta gravel, sand, silt, and clay. The coarse grains are seldom larger than coarse sand and consist largely of volcanic debris and fragments of the nearby Paleozoic rocks. Finer-grained rocks, chiefly water-laid tuffs or tuffaceous rocks, are predominant in most areas. Beds of marly limestone are often present, and thin white beds of either diatomite or pure volcanic ash are present near the town of Panaca. Porcelaneous opal-cemented tuff in thin layers and concretions also occur in the butte at Panaca.

Mineral Occurrences. A bed of diatomite 6 to 10 feet thick crops out beneath 22 to 40 feet of overburden east of Panaca. It has a strike length of 2,300 feet. Uranium and titanium occurrences are reported in the area (Garside, 1973; Tingley et al., 1998). Carnotite occurs in tuffaceous lakebeds of the Pliocene Panaca Formation.

C.1.27 Little Mountain Mining District

The Little Mountain mining district, also known as the Cinnamon Bear mining district, is in the Cedar Range about 12 miles southeast of Panaca. Its northern boundary is 2 miles south of the corridor.

History of Discovery, Exploration, and Mining. Information regarding the history of discovery, exploration, and mining in this district was not identified during this limited investigation.

Generalized Geologic Description. The Little Mountain mining district is in an area underlain by intrusive and extrusive igneous rocks, and a small amount of sedimentary rocks. The oldest rocks consist of Cambrian limestone and are exposed at the northern end of the district. They are unconformably overlain by andesitic volcanic rocks and are all intruded by a Tertiary diorite or monzonitic porphyry stock. The andesitic rocks and the diorite stock are themselves cut by a small granite stock and by several aplitic dikes as much as 80 feet thick. Rhyolitic volcanic rocks overlie the diorite, and the aplite dikes are probably the feeders for these rocks (Tschanz and Pampeyan, 1970).

Mineral Occurrences. All of the mineral deposits occur in or near the intrusive stock, and many prospect pits showing copper stain, but no visible sulfides, are scattered along altered and often poorly defined shear zones through an area of about 2 square miles. Several prospects, including the Aztec, are in andesite at the diorite contact (Tschanz and Pampeyan, 1970).

Small amounts of malachite and chrysocolla are the only visible ore minerals in most prospect pits. The copper occurs chiefly as black chalcocite or tennorite, because rock with little copper stain or visible sulfides is reported to contain as much as 4 percent copper and averages around 1.5 to 2.0 percent. The highest reported silver content was 14 ounces per ton (Tschanz and Pampeyan, 1970).

C.2 OTHER KNOWN MINERALIZED AREAS WITHIN AND NEAR THE PROPOSED LAND WITHDRAWAL

C.1.28 Reveille Valley Area

The Reveille Valley area includes the area along the western side of Reveille Valley, east of the southern end of the Kawich Range. Part of the Reveille Valley area overlaps the corridor.

History of Discovery, Exploration, and Mining. According to Tingley et al. (1998), a shallow prospect pit located in the center of a hydrothermally altered area north of the Nevada Test and Training Range (NTTR) boundary is evidence of historical prospecting activity, but the records reviewed did not indicate when this activity took place. The altered areas have been the site of exploration by several mining companies over the last 15 years (Tingley et al., 1998), most recently by Kennecott Exploration, which held claims in the area in 1995 and conducted exploration drilling. Red Hawk Resources was conducting exploratory drilling in this area in mid-2004, as observed during the initial field reconnaissance (Shannon & Wilson, 2005a).

During the June 2004 initial field reconnaissance, drilling was observed in the Reveille Valley area on the pediment east of the Kawich Range (Shannon & Wilson, 2005a). The area observed to be the site of drilling activities in June 2004 appears to correspond to the area described above by Tingley et al. (1998) and based on research, is referred to as the Alien Gold project currently being explored for precious mineralization by Redhawk Resources, Inc.

The following information was obtained from the Redhawk Resources, Inc. website, which included the Alien Gold project geologic report prepared by Mr. R. Joe Sandberg in September 2004. Gold and silver mineralization at the Alien Gold project is typical of volcanic, hosted, low-sulfidation, epithermal mineralizing systems. Precious metals are hosted in silicified zones, stockwork veins, and breccias developed along west-northwest-, east-northeast- and east-west-trending structures. Mineralized zones are enveloped by successive argillic and propylitic alteration halos (Sandberg, 2004).

Exploration work at the Alien Gold project has been conducted since 1988 by the property owners, Pegasus Gold Corporation, Kennecott Exploration, and recently by Redhawk Resources, Inc. Early drilling and exploration focused upon finding near-surface, bulk-mineable, precious-metal mineralization. Discovery of high-grade gold intervals (up to 31 grams per ton [g/t] over 5 feet) within large, low-grade halos prompted more recent drilling efforts to locate high-grade gold and silver capable of supporting underground mining. Drilling prior to 2004 was all reverse circulation and totaled 35,345 feet in 58 holes. Exploration by Redhawk Resources, Inc. in 2004 included re-logging available drill cuttings, compiling and revaluating data, commissioning geophysical surveys (gradient array resistivity and spontaneous potential gradient surveys) over the Cap Structure discovery area, and drilling 5 core holes totaling 5,645 feet along about 1,200 feet of the Cap zone. The drilling confirmed the west-northwest trend and steep southwest dip of the Cap Structure, the presence of high gold grades (15.5 g/t gold over 4 feet in hole AC2), and long intervals of low gold grades. While not successful in finding a large body of high-grade gold, the core drilling confirms the presence of a large, multi-episodic, precious metal-bearing hydrothermal system (Redhawk Resources, Inc., 2004).

A two-phase exploration program is recommended for the Alien Gold Project to consist of geologic mapping and additional geophysical coverage, followed by a second drilling exploration phase of 45,000 feet (Sandberg, 2004).

Redhawk Resources, Inc. has a 90-year lease agreement for the Alien Gold Project with private owners. To maintain the lease, Redhawk Resources, Inc. is required to make payments totaling $100,000, deliver 500,000 shares, and expend $725,000 on the property over the first 6 years of the agreement (Redhawk Resources, Inc., 2004).

BLM Tonopah personnel indicated an area at the southern end of the Reveille Range where there was recent mining activity. There is some activity associated with some small mines in the area. This area is within the South Reveille Wilderness Study Area, and is centered around a shaft at the southwestern end of the range. Past production is unknown. It is described by Neubert (1986) as a 3,000-foot-long by 1,800-foot-wide area of highly fractured and bleached rhyolite that contains minor gold and silver, and low concentrations of arsenic. The mineralized area consists of a silver- and gold-bearing quartz vein, and widespread fracturing and alteration. The quartz vein is exposed in a 30-foot shaft. It is 3 feet wide, strikes N. 60^0 W., and dips 85^0 SW. The rhyolite tuff north of the shaft is highly fractured and bleached, and contains partly kaolinized potassium feldspar. The fractures are subparallel and trend north to northeast. Northwest-trending lenses of iron oxide-stained rhyolite are locally silicified and may be as much as 40 feet wide. Neubert (1986) suggested that there may be a genetic relationship between structures and mineralization, and indicated a possible association with the Bellehelen lineament.

Generalized Geologic Description. Tingley et al. (1998) describe the Reveille Valley area west of the Wilderness Study Area as hydrothermally altered, welded ash-flow tuff that crops out on several small hills and in dry washes. The tuff outcrops are on a pediment surface and are surrounded by Quaternary alluvium. Several rotary drill holes were collared in alluvium and penetrated altered ash-flow tuffs at depths of 65 to 100 feet (Tingley et al., 1998).

The altered tuff has been widely argillized and silicified. Strongly silicified ledges grade outward into quartz-kaolin alteration and into areas of opalized tuff (Tingley et al., 1998). Surface sample analysis (Tingley et al., 1998) and reported drill cutting analysis returned results indicative of high-level alteration in a high-sulfidation mineralizing system.

C.1.29 Pozzolan Placer Area

The Pozzolan placer area is about 4 miles south of Pioche and north of Cathedral Gorge State Park. It occupies an area of low relief southeast of the Highland Range. The southern end of the area varies from 1 to 2 miles north of the corridor. Because pozzolan is a "specialty material," it is locatable under the Mining Law.

History of Discovery, Exploration, and Mining. Based on this limited investigation, there appears to be no information regarding the history of the discovery, exploration, and mining in the area.

Generalized Geologic Description. The Pozzolan Placer Area consists of low volcanic hills with a thin veneer of alluvium and colluvium cover over Tertiary lakebed sediments and volcanic rocks.

Mineral Occurrences. Portions of the Tertiary lakebed sediments consist of pozzolan, a siliceous material similar to diatomaceous earth; opaline chert; and certain silica-rich tuffs.

C.1.30 Caliente Area

The Caliente area includes the flanks and northern end of the Clover Mountains south and southeast of Caliente, an area northwest of Caliente in Antelope Canyon, and the town of Caliente. Several mineral resources occur in this area.

History of Discovery, Exploration, and Mining. A quartzite quarry about 1 mile north of Caliente in Antelope Canyon was the largest operating quarry in Lincoln County (Tschanz and Pampeyan, 1970). The quarry was served by a railroad spur of the Union Pacific Railroad, and produced ballast for the railroad and aggregate for contractors working on local construction projects. This quarry was observed during the June and October 2004 initial field reconnaissances to be non-operational (Shannon & Wilson, 2005a). Farther down Antelope Canyon, to the southeast, is what may be a surface mining operation within the main wash. This operation was observed to be active when visited in June 2004.

Although zeolite deposits were reported to occur in the Caliente area, they were classified as having "no significant past production (Papke and Castor, 2003). The zeolite deposit was not located during the October 2004 initial field reconnaissance (Shannon & Wilson, 2005a).

Perlite deposits are a major resource in Lincoln County, which usually ranks first in Nevada in production (Tschanz and Pampeyan, 1970). Perlite is a term that includes all expandable volcanic glass. It was first produced on a commercial scale in 1948. In 1949 and 1950, Lincoln County accounted for about half of the national perlite production, and the county has remained a major source since that time. Many large deposits of commercial quality are known, and it is likely more will be found. A report from Union Pacific Railroad in 1951 estimated that the reserves of 10 perlite deposits in Lincoln County totaled about 180,400,000 tons. Tschanz and Pampeyan (1970) indicated the presence of large, undeveloped deposits not previously described in the 1951 report and, therefore, subsequent estimates are higher. Restricted access was encountered during the October 2004 initial field reconnaissance, and these deposits were not observed (Shannon & Wilson, 2005a).

Generalized Geologic Description. The part of the Caliente area northwest of Caliente is comprised primarily of the Prospect Mountain Quartzite. The area is also generally underlain by Cambrian rocks and Tertiary volcanic rocks. It is likely that the Upper Cambrian rocks, which include limestone, quartzite, and dolomite, are part of the Highland thrust plate that appears to have overridden the volcanic rocks.

The entire mass of the Clover Mountains is composed of volcanic rocks, except for a few scattered areas of pre-Tertiary sedimentary rocks that were complexly faulted before the volcanic activity. Faulted Cambrian sedimentary rocks and dioritic intrusive rocks crop out in the Pennsylvanian mining district. Cobble conglomerate and lacustrine limestone of Tertiary or Cretaceous age crop out beneath the volcanic rocks in some areas. Permian, Triassic, and Carboniferous rocks crop out in other areas.

The structure of the Tertiary rocks is largely unknown, but it appears to be comparatively simple. South and east of Caliente, the younger volcanic rocks consist of about 600 feet of interbedded, white tuffaceous rocks and thin rhyolite flows and welded tuffs. The basal unit rests unconformably on the older volcanic rocks. It is a reddish or pink scoriaceous rhyolite that is 80 feet thick. It is altered along the faults to chalky white clays and alunite. The tuffaceous rocks in the sequence are partly water-laid and partly massive air-fall or air-flow deposits. Perlite or perlitic flows occur locally near the top of the sequence. This entire ignimbrite series may have been extruded from vents near Boyd, about 15 miles south of Caliente, where a major complex dike-flow unit of platy rhyolite formed late in the series.

Mineral Occurrences. Two adjacent perlite deposits are probably parts of a single flat-lying mass, which overlies a rhyolite flow. The Minto deposit is 60 feet thick, and the Eccles deposit is 150 feet thick.

APPENDIX D

MINERAL DEPOSIT MODELS AND OTHER DESCRIPTIONS OF MINERAL AND ENERGY RESOURCES

APPENDIX D

MINERAL DEPOSIT MODELS AND OTHER DESCRIPTIONS OF MINERAL AND ENERGY RESOURCES

TABLE OF CONTENTS

Page

D.1 METALLIC-MINERAL DEPOSIT MODELS D-1
- D.1.1 Tungsten Skarn Deposits (Model 14A) D-2
- D.1.2 Porphyry Copper (Model 17) and Porphyry Copper-Molybdenum Deposits (Model 21A) D-3
- D.1.3 Copper Skarn Deposits (Model 18B) D-4
- D.1.4 Zinc-lead Skarn Deposits (Model 18C) D-5
- D.1.5 Iron Skarn Deposits (Model 18D) D-6
- D.1.6 Polymetallic Replacement Deposits (Model 19A) D-6
- D.1.7 Replacement Manganese Deposits (Model 19B) D-7
- D.1.8 Distal-disseminated Silver-gold Deposits (Model 19C) D-8
- D.1.9 Polymetallic Vein Deposits (Model 22C) D-9
- D.1.10 Hot Springs Gold-Silver Deposits (Model 25A) D-10
- D.1.11 Comstock Epithermal (Quartz-Adularia) Vein Deposits (Model 25C) D-11
- D.1.12 Epithermal Quartz-alunite Deposits (Model 25E) D-12
- D.1.13 Sediment-Hosted Gold-Silver Deposits (Model 26A) D-13
- D.1.14 Hot Springs Mercury Deposits (Model 27A) D-14
- D.1.15 Simple Antimony Deposits (Model 27D) D-15

D.2 DETAILED DESCRIPTIONS OF THE NON-METALLIC/INDUSTRIAL MINERALS ASSESSED IN THIS REPORT D-15
- D.2.1 Barite D-16
- D.2.2 Borates D-16
- D.2.3 Carbonate Rock (Limestone and Dolomite) D-17
- D.2.4 Clay D-18
- D.2.5 Decorative and Dimension Stone D-19
- D.2.6 Diatomite D-20
- D.2.7 Fluorspar/Fluorite D-20
- D.2.8 Lithium D-21
- D.2.9 Natural Aggregate (including Sand and Gravel) D-21
- D.2.10 Perlite D-23
- D.2.11 Pozzolan D-23
- D.2.12 Pumice/Pumicite D-24
- D.2.13 Silica D-24
- D.2.14 Saline Minerals D-25

TABLE OF CONTENTS (CONT.)

Page

D.2.15 Sulfur D-26
D.2.16 Zeolites D-26

D.3 OIL AND GAS D-27
D.3.1 Unconformity "A" Play (Play 1901) D-28
D.3.2 Late Paleozoic Play (Play 1902) D-29
D.3.3 Late Paleozoic-Mesozoic (Central Nevada) Thrust Belt Play (Play 1906) D-30

D.4 URANIUM D-30

APPENDIX D

MINERAL-DEPOSIT MODELS AND OTHER DESCRIPTIONS OF MINERAL AND ENERGY RESOURCES

This appendix is divided into four sections. Section D.1 describes 15 metallic mineral-deposit models that were used in Section 4.1 as the basis for assessing the *potential* for metallic minerals in the proposed land withdrawal area. Section D.2 contains detailed descriptions of the 16 nonmetallic and industrial minerals assessed in this report. Section D.3 describes relevant petroleum-accumulation models that were used in Section 4.3 of this report as the basis for assessing the *potential* for oil and gas resources in the proposed land withdrawal area. Section D.4 describes uranium occurrences in Nevada.

References cited in this Appendix are listed in Chapter 6 (References) of the main report.

D.1 METALLIC MINERAL-DEPOSIT MODELS

The metallic mineral-deposit models described in this section were selected because of their general applicability to the geology and known mineral deposits within and near the corridor or elsewhere in Nevada. Deposit models associated with geologic conditions that are not known to exist in or near the corridor or in Nevada are not described (e.g., models for nickel resources).

The assessment of mineral potential in Section 4.1 does not assign *specific* deposit models to areas within the corridor. Others, however, have applied specific deposit models to mining districts and occurrences in Nevada (Sherlock et al. [*in* Singer, 1996], Tingley et al., 1998; ENSR, 2004). The identification by these authors of deposit models that area applicable to Nevada, especially to southern Nevada, is the basis for the deposit models selected for this assessment.

Deposits and occurrences of metallic minerals in and near the corridor are broadly associated with plutonic rocks (primarily base-metal deposits) and epithermal systems (primarily precious-metal deposits). They are summarized in Table 2 (in Section 4.1 of the report).

The 15 deposit models selected for this *mineral potential report* are described in detail in this section. These descriptions are largely from Sherlock et al. (*in* Singer, 1996), Cox and Singer (1986), and Tingley et al. (1998). The deposit-model numbers shown for each subheading are from Sherlock et al. (*in* Singer, 1996) and are included for reference.

D.1.1 Tungsten Skarn Deposits (Model l4A)

Tungsten skarns are scheelite-bearing, calc-silicate, contact-metasomatic rocks that form at contacts along the margins and in roof pendants near the tops of granitoid intrusions. They are typically found in argillaceous carbonate rocks within carbonate-clastic rock sequences. Most are formed at depths of 5 to 15 kilometers (km) below the surface and at temperatures in excess of 500^0C. They are best developed in carbonate beds of the intruded sedimentary sequence. Scheelite is disseminated in the contact metamorphic rocks. It may also occur along fractures and locally in quartz veins.

In Nevada, tungsten skarns are present in most localities where granitoid rocks are present. Although they are associated with granitoids of all ages, the majority of occurrences and deposits in Nevada are associated with deep-seated Cretaceous plutons or near small, isolated Cretaceous stocks. Compositionally, the intrusive rocks may be tonalities, granodiorites, or quartz monzonites that exhibit granitic or granoblastic textures. Only a few tungsten skarns in Nevada are associated with Tertiary plutons.

Tungsten skarns are most numerous in clastic sedimentary sequences with interbedded limestone that range in age from late Precambrian to Jurassic. The most productive deposits are in limestone in Mesozoic rock sequences where the limestone beds are thin and widely scattered. East of the main Cretaceous batholithic belt in east-central Nevada, the skarns are found in lower Paleozoic carbonate rocks that have been intruded by small, isolated Cretaceous stocks.

The mineralogy of tungsten skarns consists of scheelite ± molybdenite ± pyrrhotite ± sphalerite ± chalcopyrite ± bornite ± arsenopyrite ± pyrite ± magnetite ± traces of wolframite, fluorite, cassiterite, and native bismuth. Alteration consists mainly of silicification. Alteration minerals include a central zone of diopside-hedenbergite and grossular-andradite, with late-stage spessartine + almandine. An outer barren wollastonite zone with or without tremolite, a peripheral marble zone, and an inner zone of massive quartz may be present. The geochemical signature of these deposits consists of some combination of tungsten, molybdenum, zinc, copper, tin, bismuth, beryllium, and arsenic. The associated igneous rocks are commonly barren.

Favorable Geologic Characteristics:

- Presence of Cretaceous granitoid plutons or stocks.
- Presence of Lower Paleozoic and Mesozoic calcareous clastic sedimentary rocks and thin-bedded limestone.

- Presence of associated deposit types: Tin-tungsten skarns, zinc skarns.
- Presence of orogenic belts (not required).

D.1.2 Porphyry Copper (Model 17) and Porphyry Copper-molybdenum Deposits (Model 21A)

Cox and Singer's (1986) model for porphyry copper deposits (Model 17) is a general model that includes various subtypes of porphyritic deposits, all of which contain chalcopyrite in stockwork veinlets in hydrothermally altered porphyry and adjacent country rock. Differences between subtypes of copper porphyry deposit models are based on parameters such as grade and tonnage models or percentage of copper in wall rock compared with the intrusion. The following description, adopted largely from a description of porphyry copper-molybdenum deposits in Tingley et al. (1998), is applicable to base-metal porphyry deposits.

Porphyry copper-molybdenum deposits are associated with porphyritic intrusions. The deposits may occur in stockworks within the intrusions or in adjacent silicate wall rocks. In some districts where porphyries have been emplaced into carbonate wall rocks, the ore bodies are dominantly in skarns or polymetallic replacement deposits. An overriding feature of the porphyries is that they are very large hydrothermal-petrogenetic systems that influence cubic kilometers of rock.

The porphyritic intrusions are generally of Mesozoic or Cenozoic age, but may be any age. They range in composition from diorite to tonalite, syenite, granodiorite, monzonite, and quartz monzonite. The porphyry stocks are commonly cylindrical-shaped and typically 1 to 2 km in diameter, and may consist of several intrusive pulses closely related in space and time. The ore occurs both in quartz-sulfide stockworks and as disseminated sulfides in the porphyries. Early hypogene alteration, associated with the main copper-molybdenum stage, consists of a central core or potassic alteration grading outward into a halo of propylitic alteration. This early hypogene alteration, related to magmatic fluids, may be overprinted by quartz-sericite-pyrite alteration created principally by circulation meteoric water. The upper part of many porphyry systems, when preserved, typically exhibits advanced argillic alteration in silicate rocks.

Sulfides are predominantly pyrite, chalcopyrite, bromide, and molybdenite. Magnetite is commonly present. Some porphyry deposits can be classified as copper-gold because they contain > 0.4 parts per million (ppm) gold (Sillitoe, 1988). Gold is typically present as electrum, but occurs as a telluride in enargite-rich upper levels of porphyry systems. In addition to copper and molybdenum, geochemically anomalous elements in many, but not all, porphyries include gold, silver, bismuth, tellurium, zinc, lead, boron, selenium, strontium, rubidium, potassium, arsenic, and antimony. Some porphyries contain elevated levels of platinum-group elements. Each intrusive pulse in a copper-molybdenum porphyry system contains its own metal budget. Hydrothermal breccia pipes are typical of many porphyries and may contain significant ore deposits. Late-stage diatremes are also present in many porphyries and are usually barren and cut out part of the earlier-formed porphyry mineralization.

Favorable Geologic Characteristics:

- Presence of tonalite to monzogranite or syenitic porphyry intrusive rock.
- Presence of high-level intrusive porphyry contemporaneous with abundant dikes, faults, and breccia pipes.
- Presence of areas of uplift and erosion to expose subvolcanic rocks.
- Presence of porphyry copper-associated deposit types: base-metal skarns, epithermal veins, polymetallic replacement deposits, volcanic-hosted massive replacement deposits.
- Presence of porphyry copper-molybdenum-associated deposit types: Copper, zinc, or iron skarns that may be rich in gold, gold and base-metal sulfosalts in veins, or gold placers, and volcanic-hosted massive replacement and polymetallic replacement deposits.
- Presence of surface weathering such as wide areas of iron oxide stain, hematitic limonite fracture coating, anomalous rutile in soils, green and blue copper carbonates and silicates in weathered outcrops, and deposits of secondary sulfide replacing pyrite and chalcopyrite.

D.1.3 Copper Skarn Deposits (Model 18B)

Most copper skarns are spatially associated with Jurassic intrusive rocks emplaced in carbonate rocks or calcareous clastic rocks. They are characterized by chalcopyrite in calc-silicate contact metasomatic rocks. The chalcopyrite is associated with magnetite and/or pyrrhotite; a variety of other ore minerals are locally significant. Copper skarns form in less dynamic magmatic-hydrothermal environments than porphyry-related skarns, and possibly at greater depths where fluid flow is more restricted. They are typically associated with barren stocks, are relatively small deposits, share many characteristics of calcic iron skarns, and are similar in geology and geochemistry to zinc-lead skarns.

Favorable Geologic Characteristics for Polymetallic Replacement Deposits:

- Presence of Cretaceous or Tertiary porphyritic calc-alkaline plutons, volcanic centers, or calderas.

- Presence of carbonate sedimentary rock sequences (limestone, dolomite, shale) of Paleozoic or Triassic age in eastern and western Nevada, respectively.
- Presence and projection of structural zones localizing intrusive activity or deformation.
- Presence of associated deposit types: base metal skarns, porphyry copper deposits.
- Presence of jasperoid containing high barium and trace silver content.
- Presence of oxidized zones of ochreous masses.

Favorable Geologic Characteristics for Zinc-lead Skarns:

- Presence of carbonate rocks at shale-limestone contacts. Deposit may be hundreds of meters from intrusive.
- Presence of copper or iron skarns more proximal to mineralizing intrusion.
- Presence of gossan with strong manganese oxide stain.
- Presence of magnetic anomalies.
- Presence of associated deposit types: porphyry copper, zinc-lead skarn, polymetallic replacement, iron skarn.
- Presence of copper carbonate, silicates, iron-rich gossan.

D.1.4 Zinc-lead Skarn Deposits (Model 18C)

Zinc-lead skarn deposits are found where carbonate rocks are intruded by granitoids and typically are formed more distally to the mineralizing intrusive rock than are copper and iron skarns. They are less abundant than polymetallic replacement deposits, but their geologic environment of formation and geographic distribution is similar. Zinc-lead skarns are characterized by sphalerite and galena in calc-silicate metamorphic rocks derived from carbonate and calcareous clastic sedimentary rocks. Calc-silicate mineralogy typically includes diopside, epidote, and tremolite. Manganese-rich silicate and carbonate minerals are characteristic of zinc-lead skarns.

Favorable Geologic Characteristics:

- Presence of Cretaceous or Tertiary porphyritic calc-alkaline plutons, volcanic centers, or calderas.
- Presence of carbonate sedimentary rock sequences (limestone, dolomite, shale) of Paleozoic or Triassic age in eastern and western Nevada, respectively.
- Presence and projection of structural zones localizing intrusive activity or deformation.
- Presence of associated deposit types: base metal skarns, porphyry copper deposits.

- Presence of jasperoid containing high barium and trace silver content.
- Presence of oxidized zones of ochreous masses.
- Presence of carbonate rocks at shale-limestone contacts. Deposit may be hundreds of meters from intrusive.
- Presence of copper or iron skarns more proximal to mineralizing intrusion.
- Presence of gossan with strong manganese oxide stain.
- Presence of magnetic anomalies.

D.1.5 Iron Skarn Deposits (Model 18D)

Iron skarn deposits contain magnetite or hematite with calc-silicate minerals in contact metasomatic rocks. The most important iron skarns develop in the contact zone between Mesozoic plutons and Triassic and Jurassic carbonate rocks in western Nevada, although a small iron skarn associated with a Tertiary pluton occurs in north-central Nevada.

Igneous rocks associated with iron skarns vary from felsic to mafic, and include gabbro, diorite, diabase, syenite, tonalite, granodiorite, granite, and coeval volcanic rocks. Ore controls are carbonate rocks, calcareous rocks, igneous contacts and fracture zones near contacts. Iron skarn ores can also form in gabbroic host rocks near felsic plutons. The geochemical signature is defined by iron, copper, cobalt, gold, and possibly tin.

Unoxidized deposits consist primarily of magnetite, and exhibit a strong magnetic anomaly.

Favorable Geologic Characteristics:

- Presence of Mesozoic plutons (felsic to mafic).
- Presence of Triassic and Jurassic carbonate rocks.
- Presence of magnetite in outcrop or abundant float.
- Presence of magnetic anomalies.
- Presence of copper skarns.

D.1.6 Polymetallic Replacement Deposits (Model 19A)

Polymetallic replacement deposits form by replacement by solutions emanating from volcanic centers and epizonal plutons; caldera environments are favorable. The replacement deposits are formed in sedimentary rocks (chiefly limestone, dolomite, and shale) that are commonly overlain by volcanic rocks and intruded by porphyritic, calc-alkaline plutons. The preferred host rocks are massive carbonate beds that fractured during intrusion and deformation.

The majority of deposits in Nevada are in Paleozoic carbonate rocks in the eastern part of the state, but a few deposits are in Triassic carbonate rocks in western Nevada.

Deposits typically form tabular, pod-like, and pipe-like ore bodies that are localized by faults or sedimentary strata. The ores contain galena, sphalerite, tetrahedrite, and silver sulfosalts. Mineral zoning is common, with inner zones rich in chalcopyrite or enargite and outer zones containing only sphalerite and rhodochrosite. On a district-wide basis, ore deposits commonly are zoned outward from a copper-rich central area through a wide lead-silver zone, to a zinc- and manganese-rich fringe. Jasperoid is common near the ore bodies, and jasperoid related to ore can often be recognized by high barium and trace-silver content.

The age of these deposits has not been determined isotopically. Most of the known deposits and occurrences in Nevada are near porphyritic calc-alkaline plutons of Cretaceous or Tertiary age, although some are associated with Triassic plutons.

Favorable Geologic Characteristics:

- Presence of Cretaceous- or Tertiary-age porphyritic calc-alkaline plutons, volcanic centers, or calderas.
- Presence of carbonate sedimentary rock sequences (limestone, dolomite, and shale).
- Paleozoic or Triassic age in eastern and western Nevada, respectively.
- Presence and projection of structural zones localizing intrusive activity or deformation.
- Presence of associated deposit types: base metal skarns, porphyry copper deposits.
- Presence of jasperoid containing high barium and trace silver content.
- Presence of oxidized zones of ochreous masses.

D.1.7 Replacement Manganese Deposits (Model 19B)

Replacement manganese deposits are spatially and genetically related to polymetallic replacement deposits. They differ from polymetallic deposits in that they contain a higher amount of manganese or manganese oxide minerals, and lesser amounts of lead, zinc, and silver minerals. Manganese carbonate replaces carbonate rocks and fills veins or cavities. Copper carbonates are locally present. Although they may be spatially coincident with polymetallic replacement deposits, they may also be localized more distally to polymetallic replacement deposits and to porphyry copper deposits.

Favorable Geologic Characteristics:

- Presence of Cretaceous- or Tertiary-age porphyritic calc-alkaline plutons, volcanic centers, or calderas.
- Presence of carbonate sedimentary rock sequences (limestone, dolomite, shale) of Paleozoic or Triassic age in eastern and western Nevada, respectively.
- Presence and projection of structural zones localizing intrusive activity or deformation.
- Presence of associated deposit types: polymetallic vein, polymetallic replacement, copper skarn, zinc skarn, porphyry copper.
- Presence of manganese oxide minerals, limonite, kaolinite.

D.1.8 Distal-disseminated Silver-gold Deposits (Model 19C)

Distal-disseminated silver-gold deposits contain silver and gold in stockworks of thin quartz-sulfide veins in sedimentary rock. They contain trace elements indicative of a plutonic-related suite (lead [Pb], zinc [Zn], manganese [Mn], copper [Cu], arsenic [As], antimony [Sb], and bismuth [Bi]). They are present in or near districts with major skarn, replacement, and vein base-metal ores, but they are localized in the most distal parts of these districts. Although distal-disseminated silver-gold deposits are similar to sediment-hosted gold deposits (Model 26A), the two deposit types are distinguished on the basis of proximity to plutons, geochemistry, and silver-to-gold (Ag:Au) ratio. All distal-disseminated silver-gold deposits are related to plutons, exhibit a plutonic-related geochemical suite, and have a Ag:Au ratio of more than 1. In contrast, not all sediment-hosted gold deposits are known to be associated with plutons. The geochemical signature typically contains arsenic, antimony, mercury (Hg), and zinc, and the Ag:Au ratio is less than 1.

Favorable Geologic Characteristics:

- Presence of fracture permeability (shears, folds, faults) in carbonate and clastic sedimentary rocks.
- Presence of felsic or subvolcanic intrusions.
- Presence of silicification and decalcification of carbonate rocks and sericite-clay in clastic rocks.
- Presence of associated deposit types: porphyry copper, copper skarn, lead-zinc skarn, gold skarn, polymetallic veins, polymetallic replacement and replacement manganese deposits.

D.1.9 Polymetallic Vein Deposits (Model 22C)

Polymetallic veins are intrusive-related deposits characterized by quartz or quartz-carbonate veins that contain diverse base- and precious-metal sulfide ore minerals. The veins occur in or adjacent to intrusions that range in composition from diorite to granite, and exhibit textures ranging from porphyritic to equigranular. Polymetallic veins in Nevada have been found in association with plutons of all ages. A correspondence with mineralized Tertiary plutons is suggested in the central part of Nevada. There is also a strong association with Jurassic and Cretaceous plutons. The veins in the Reese River district (Austin) in central Nevada are believed to be genetically related to a Cretaceous pluton 8 km to the southeast.

Vein mineralization may contain electrum, sphalerite, galena, chalcopyrite, pyrite arsenopyrite, tetrahedrite-tennanite, and silver sulfides and/or sulfosalts in a gangue of quartz and carbonate. The veins may exhibit mineral and metal zoning with an inner copper-gold zone (sometimes with tungsten), zoning outward to copper-lead-zinc-silver ores, then to lead-zinc-silver, and in some veins, to an outer antimony-arsenic-mercury zone. They are typically multiphase with crustiform, comb, and massive textures.

Most of the veins were mined for their silver content, but lead, zinc, and copper were also recovered from some. Some veins have been mined for their gold or tungsten content. Antimony has been produced from polymetallic veins, and molybdenite and fluorite have been reported.

In most places, polymetallic veins are spatially related to other intrusive-related deposit types, such as polymetallic replacement, porphyry copper, and porphyry molybdenum deposits. The mineralizing intrusive centers may be surrounded by a halo of polymetallic veins whose metal contents systematically vary laterally with distance from the porphyry center. Alteration in igneous host rocks includes narrow areas of sericitic and/or argillic alteration as vein envelopes, surrounded by a broad halo of propylitic alteration.

Favorable Geologic Characteristics:

- Presence of areas of high secondary permeability (fault intersections, intrusive contacts, high-angle faults and near-surface fractures, breccia veins, and pipes).
- Presence of clusters of small intrusions, preferably with thermal aureoles coincident with zones of structurally-induced permeability.
- Presence of domal uplift areas.

- Presence of wide propylitically altered areas.
- Presence of jasperoid in carbonate rocks.
- Presence of abundant quartz chips in soil, minor gossans and manganese oxide stains, zinc and lead carbonates, and lead sulfate where weathered.
- Presence of associated deposit types: porphyry systems, polymetallic replacement deposits, placer gold.

D.1.10 Hot Springs Gold-silver Deposits (Model 25A)

Hot springs gold-silver deposits are fine-grained silica and quartz in silicified breccia with gold, pyrite, and antimony and arsenic sulfides. They form where hydrothermal systems are active within a few hundred meters of the surface. Geologic characteristics include siliceous sinter, fumarolic mineral precipitates, and hydrothermal eruption breccias. The deposits typically have a high gold-to-silver ratio and contain precious metals and sparse sulfides disseminated throughout a thick blanket-like section of permeable tuffs or in stockworks in brittle rocks. Characteristics of hot springs gold-silver deposits overlap those of epithermal quartz-adularia veins. Hot springs deposits may transition to quartz-adularia veins at depth, and exhibit similar geologic characteristics such as fault control, open-space-filling textures, and wallrock alteration.

Most hot spring deposits in Nevada are in volcanic rocks of the calc-alkaline or bimodal assemblages. They occur in subaerial volcanic centers, rhyolite domes, and shallow parts of related geothermal systems. Some hot springs deposits are hosted in Tertiary sedimentary rocks, Miocene lakebeds, and mixed environments of Tertiary volcanic and pre-Tertiary sedimentary rocks, although the age of the deposits is mainly Tertiary. The deposits contain crustified banded veins, stockworks, and breccias that may be uncemented or cemented with silica. At the top of the bottom of the system, alteration consists of chalcedonic sinter, massive silicification, stockworks and veins of quartz and adularia, and breccia cemented with quartz or quartz and chlorite. Veins in this area are generally chalcedonic with some opal.

Favorable Geologic Characteristics:

- Presence of subaerial rhyolitic volcanic centers, rhyolite domes, and shallow parts of related geothermal systems.
- Presence of through-going anastomosing fracture systems, major normal faults, fractures related to doming, ring fracture zones, joints.
- Presence of calc-alkaline or bimodal volcanism.

- Presence of chalcedonic sinter, massive silicification, crustified banded veins, stockworks, and breccias.
- Presence of bleached country rock, yellow limonite with jarosite and fine-grained alunite, hematite, goethite.
- Presence of associated deposit types: epithermal quartz veins, hot spring mercury, placer gold.

D.1.11 Comstock Epithermal (Quartz-Adularia) Vein Deposits (Model 25C)

Comstock epithermal vein deposits as defined in Cox and Singer (1986) are referred to as epithermal quartz-adularia gold-silver deposits in Singer (1996) and as low-sulfidation epithermal ore deposits by Tingley et al. (1998). Productive Comstock epithermal vein deposits are characterized by complex vein mineralogy, with argentite and silver sulfosalts, galena and chalcopyrite, and local tetrahedrite or sphalerite. They typically contain small amounts of fine-grained sulfides), and sulfosalts and have low base-metal grades. Silver is generally more abundant than gold. The veins exhibit extensive and gradational alteration, especially propylitic alteration, vuggy, comb, and crustiform vein structures with banded sulfide layers, quartz, calcite, and pyrite gangue mineralogy. Adularia is commonly present, and sericite is a common potassic mineral.

Comstock epithermal veins develop above a brine-poor basement composed of clastic sedimentary and metamorphic rocks. The geologic environment permissive for these vein deposits is widespread in Nevada. Most of these deposits are hosted in Tertiary volcanic rocks and are spatially related to synvolcanic deformational features, such as faults and fractures in the host rock formed during or closely following the period of igneous activity. The mineralization is related to calc-alkaline or bimodal volcanism; host rocks are andesite, dacite, quartz latite, rhyodacite, and rhyolite, as well as associated sedimentary rocks.

Favorable Geologic Characteristics:

- Presence of through-going anastomosing fracture systems, major normal faults, fractures related to doming, ring fracture zones, joints.
- Presence of calc-alkaline or bimodal volcanism, especially centers of intrusive activity.
- Presence of banded veins, open-space filling, lamellar quartz, and stockworks.
- Presence of propylitic alteration and quartz-carbonate deposition in hydrothermal conduits.

- Presence of bleached country rock, limonite, jarosite, goethite, alunite, hematite, argillization with kaolinite.
- Presence of associated deposit types: placer gold and epithermal quartz-alunite.

D.1.12 Epithermal Quartz-alunite Deposits (Model 25E)

Epithermal quartz-alunite deposits as defined in Cox and Singer (1986) are also known as acid-sulfate or enargite gold. They are referred to as high-sulfidation epithermal ore deposits by Tingley et al. (1998). These vein deposits are recognized in only a few places in Nevada. They are described as gold, pyrite, and enargite in vuggy veins and breccias in zones of high-alumina alteration related to felsic volcanism. Epithermal quartz-alunite deposits typically have high gold-to-silver (Ag:Au) ratios and contain sulfur-rich copper minerals. They are characterized by extensive areas of argillic and advanced argillic alteration related to acid leaching associated with low-pH hydrothermal fluids, surrounded by areas of propylitic alteration. High-sulfidation fluids are derived from high-temperature vapors that condense in near-surface environments, producing hot, low pH fluids that react extensively with wall rock.

Associated rock types include dacite, quartz latite, rhyodacite, and rhyolite, as well as hypabyssal intrusions or domes. Although the deposits are generally Tertiary, they can be any age. They are found within volcanic edifices, ring fracture zones of calderas, or areas of igneous activity with sedimentary evaporites in basement rocks. Ore controls are through-going fractures and centers of intrusive activity. They may be found in the upper and peripheral parts of porphyry copper systems.

Favorable Geologic Characteristics:

- Presence of through-going anastomosing fracture systems, major normal faults, fractures related to doming, ring fracture zones, joints.
- Presence of felsic volcanism.
- Presence of veins, breccia pipes, pods, dikes; porous and vuggy replacement veins with comb structure, and crustified banding.
- Presence of extensive areas of argillic alteration.
- Presence of abundant yellow limonite, jarosite, goethite, white argillization with kaolinite, fine-grained white alunite veins, hematite.
- Presence of associated deposit types: porphyry copper, polymetallic replacement, volcanic hosted copper-arsenic-antimony, pyrophyllite, hydrothermal clay, and alunite deposits.

D.1.13 Sediment-hosted Gold-silver Deposits (Model 26A)

Sediment-hosted gold deposits were first recognized as a deposit type in the early 1960s (Roberts, 1986) and have been described by Percival et al. (1988), Bagby and Berger (1985), Bonham (1989), Singer (1996), and many others. They are well known for their large tonnage and associated large production despite low grades of gold. For the purpose of this assessment, classification of these deposits in Nevada follows the descriptive model for carbonate-hosted gold-silver deposits presented in Cox and Singer (1986), modified by Sherlock et al. (*in* Singer, 1996), on the basis of subsequent discoveries of deposits in clastic sedimentary rocks, as well as carbonate host rocks, and the removal of pluton-related, distal-disseminated silver-gold deposits from the model.

Sherlock et al. (*in* Singer, 1996) describe sediment-hosted gold deposits as characteristically containing micron-sized gold grains localized along thin fractures and disseminated throughout sedimentary host rocks. Ore typically contains pyrite, stibnite, realgar, orpiment and, rarely, visible gold. Hydrothermal alteration associated with gold includes replacement by jasperoid, argillization, leaching of carbonates, and local introduction of carbonaceous material. Sediment-hosted gold deposits in Nevada are found in areas underlain by crust that has been overthickened by thrusting during Antler, Golconda, and Sevier orogenies. The host rocks range in age from Cambrian to Triassic, and most deposits are in rocks of Devonian age or older. Host-rock lithologies are variable, but the lithologic sequence typically includes fine-grained calcareous sedimentary rock.

Sherlock et al. (*in* Singer, 1996) state that the distribution of these deposits in Nevada define three groups that reflect differences in host rocks, structures, and possibly age of formation. In the central group, many of the deposits are situated on or close to the Roberts Mountains Thrust. Ages of some of them have been indirectly estimated at 36 to 39 million years old. Volcanic and high-level plutonic heat sources of that age are present, generally within 10 km of sediment-hosted deposits. These heat sources are presumed to have caused fluid circulation through the Roberts Mountains fault zone and its subsidiary fractures.

The western group of deposits is hosted by siliceous shale and phyllite of Cambrian age, and by shales of Triassic age. All of the deposits in this group are located along the eastern margin of the Lovelock belt of 90 million-year-old granitic plutons. Some workers assign a Cretaceous age to these deposits and suggest that plutons of any age, in the environment of the overthickened crust and resulting connate water reservoirs, can form sediment-hosted deposits.

Deposits in the eastern group are along shale-limestone contacts of Cambrian or Devonian-Mississippian age. They are relatively small tonnage and low-grade deposits. Some are near a small Tertiary pluton; obvious heat sources have not been recognized at other deposits. Research by petroleum geologists suggests that the role of hydrocarbon reservoir formation and tectonic fracturing may be related to the occurrence of gold in this area.

Favorable Geologic Characteristics:

- Presence of known mineral belts or trends, or projections of major lineaments defining trends of known deposits.
- Presence of areas underlain by crust that has been overthickened by regional thrust faulting.
- Presence of anticlinal and domal structures related to Mesozoic folding.
- Presence of high-angle normal fault zones related to continental margin rifting.
- Presence of jasperoids, fractured silicified rocks, decalcification of carbonate rocks, argillization and pyritization of host rocks.
- Presence of high-level plutonic heat sources.

D.1.14 Hot Spring Mercury Deposits (Model 27A)

Hot spring mercury deposits typically form in siliceous sinter near the paleo-groundwater table in areas of fossil hot spring systems. Cinnabar, native mercury, minor marcasite, and pyrite are present as coatings and disseminations in fractured sinter. Generally, these deposits are found in areas of continental margin rifting associated with small-volume mafic to intermediate volcanism, and associated rock types include andesite-basalt flows, diabase dikes, andesitic tuff, and tuff breccia. Many hot spring mercury deposits in Nevada are spatially associated with exposed basalts; others are in areas coincident with prominent linear aeromagnetic features that are interpreted as large-scale tensional features filled with mafic dikes. They are Tertiary in age, and may be associated with hot spring gold deposits.

Favorable Geologic Characteristics:

- Presence of paleo hot spring systems developed along high-angle faults.
- Presence of mercury disseminations and coatings on fractures in hot spring sinter.
- Presence of associated deposit types: hot spring gold-to-silver deposits.
- Attributes related to hot spring gold-to-silver deposits:
  - Presence of subaerial rhyolitic volcanic centers, rhyolite domes, and shallow parts of related geothermal systems.

- Presence of through-going anastomosing fracture systems, major normal faults, fractures related to doming, ring fracture zones, joints.
- Presence of calc-alkaline or bimodal volcanism.
- Presence of chalcedonic sinter, massive silicification, crustified banded veins, stockworks, and breccias.
- Presence of bleached country rock, yellow limonite with jarosite, and fine-grained alunite, hematite, and goethite.
- Presence of associated deposit types: hot spring gold-to-silver deposits.

D.1.15 Simple Antimony Deposits (Model 27D)

In more than half of the vein and replacement deposits containing antimony-bearing minerals in Nevada, stibnite is the main or only ore mineral. These deposits consist of massive replacement pods or lenses of large stibnite blades or masses of fine needles, or fissure-filled vugs and cavities lined with stibnite crystals. Cinnabar or scheelite may be present locally with stibnite. Some deposits contain minor pyrite and sulfosalts, and some contain chalcopyrite and sphalerite. Some of the more complex antimony deposits are classified as polymetallic veins because of their high base-metal content.

Simple antimony deposits occur in a wide variety of igneous and sedimentary rocks that range in age from Paleozoic to Tertiary, and are found in faults and shear zones in any orogenic area. Deposits that occur in and near volcanic rocks are associated spatially with hot spring gold or mercury deposits, quartz-adularia gold-silver vein deposits, and sediment-hosted gold or mercury deposits. Those that occur in and near plutons are associated spatially with tungsten skarn, polymetallic veins, and distal-disseminated silver-gold deposits.

Favorable Geologic Characteristics:

Simple antimony deposits lack specific assessment attributes with respect to age, genesis, and depositional environments. They are associated with a wide variety of epithermal precious-metal deposits and plutonic base-metal deposits.

D.2 DETAILED DESCRIPTIONS OF THE NON-METALLIC/INDUSTRIAL MINERALS ASSESSED IN THIS REPORT

This section contains detailed descriptions of the 16 nonmetallic and industrial minerals assessed in this report.

D.2.1 Barite

Commercial deposits of barite are generally divided into four types: bedded deposits, vein deposits, karst, and residual deposits. Karst barite deposits are not known to occur in Nevada (Tingley et al., 1998). Bedded barite deposits are the most commercially attractive type as they are generally large and of relatively high grade. Most bedded barite deposits occur in Paleozoic sedimentary sequences that typically contain abundant chert, and black shale and siltstone. The most favored explanation is that bedded barite deposits were formed as a chemical precipitate from hydrothermal brines discharged at the sea floor during deep-sea sedimentation (Tingley et al., 1998).

Vein-type barite deposits exhibit great variation in size and geometry, from long, relatively narrow tabular veins to stockwork veins and breccia deposits. Vein barite occurs in a variety of host rocks that range in age from Precambrian to Tertiary. Most barite in vein deposits is associated with sulfide minerals such as pyrite, galena, and sphalerite, and with other minerals such as quartz and calcite, and often contains fragments of wallrock. Vein barite deposits are mostly considered to have formed from low-temperature epithermal solutions.

Residual barite deposits are shallow, surface concentrations of unconsolidated material formed from weathering and erosion of other deposits. The size and grade of these deposits is highly variable. Residual barite deposits are not of economic significance in the vicinity of the Caliente corridor.

D.2.2 Borates

While up to 150 boron-bearing minerals occur, only a few boron minerals exhibit physical and chemical properties that make them important to the boron-producing industry. Hydrated borate minerals, including borax, colemanite, kernite, and ulexite, have been produced from sedimentary rocks, while borosilicate and borate minerals, which include datolite, szaibelyite, and to a lesser extent tourmaline, ludwigite, and paigite, have been mined from pegmatitic igneous intrusive rocks (Kistler and Helvaci, 1994).

Commercial quantities of boron exist in three types of occurrences: nonmarine basin deposits, marine evaporite deposits, and magmatic source deposits (Kistler and Helvaci, 1994). Of the three, only nonmarine basin deposits and magmatic source deposits have the potential to exist in the vicinity of the corridor.

Nonmarine basin-type deposits generally form in closed hydrogeologic basins, with hydrated borate mineral occurrences associated with lacustrine deposits including clays, muds, limestones, and airfall tuffs. As demonstrated by temporally-constrained geologic relationships at current and historical volcanically active areas worldwide, borate minerals likely form concurrently with volcanic activity. Boron-enriched hydrothermal waters are likely the source of boron in such deposits (Kistler and Helvaci, 1994). Papke (1976) indicates that groundwater leaching of boron-rich rocks can also produce boron-rich solutions. Nonmarine basin deposits can occur as surface crusts of ulexite and borax on boron spring aprons, as borax crystal muds or shallow subsurface borax crystal layers in boron spring-fed pools. Additionally, when spring flow is low or intermittent, borate deposits occur in "marsh" or playa deposits with thicker accumulations of "cottonball" borax, colemanite, and ulexite, which likely form by upward capillary migration and evaporative concentration of boron-enriched shallow groundwater. Boron may also be present in subsurface brines in playa environments. Nonmarine basin-type borate deposits may also occur in large evaporative lake environments by evaporative concentration and precipitation of boron-enriched waters (Papke, 1976; Kistler and Helvaci, 1994). Generally, nonmarine deposits form in only arid areas; highly soluble borate minerals are not preserved in wetter environments. In addition, borate minerals associated with nonmarine-type deposits are not time-stable, partially because of solubility in water. As such, hydrous borate minerals associated with nonmarine-type deposits are not found in rocks older than Tertiary in age (Kistler and Helvaci, 1994).

Because of its chemical and physical properties, boron is not readily incorporated into the framework of most rock-forming minerals. As such, it becomes concentrated in highly differentiated felsic magmas. During intrusion and crystallization of such magmas, boron is incorporated into borosilicate minerals within resultant granitic pegmatites (Papke, 1976; Kistler and Helvaci, 1994). Because of contact metamorphism and metasomatism associated with the intrusion of boron-rich magmas, iron-magnesium skarn deposits with boron incorporated into borosilicate and borate minerals may also form in surrounding country rock (Kistler and Helvaci, 1994).

D.2.3 Carbonate Rock (Limestone and Dolomite)

The following descriptions of carbonate rocks are from Castor (1994) and Tingley et al. (1998). Limestone and dolomite are calcium and calcium-magnesium sedimentary carbonate rocks that are very important in the construction industry and for chemical and industrial use. Neither rock usually occurs pure in nature, as dolomite substitutes for calcite in limestone and calcite substitutes for the mineral dolomite in dolomite rock. The name "limestone" and "dolomite" includes rocks consisting of at least 80 percent carbonate without regard to whether the carbonate is calcite, the mineral dolomite, or a combination of both. Calcite greatly predominates in limestone, and dolomite predominates in dolomite rock. When calcite and dolomite are present in more or less equal proportions, the rock is termed a "magnesian limestone." High-calcium limestone contains at least 95 percent calcite.

Marble, which is limestone or dolomite that has been recrystallized by heat and or pressure, often has the same chemical and mineralogical composition as the original carbonate rock, or it may contain new minerals formed during the metamorphic process. Marble is almost always more coarsely crystalline than the original carbonate rock. An economically important physical quality of some marble is its ability to take a smooth polish.

Uses of these carbonate rocks include: (1) crushed stone for concrete aggregate, road material, railroad ballast and, in finer form, for poultry grit, stuccos, fillers, and whiting agents; (2) as a fluxing agent in smelting and refining metals; (3) as a soil conditioner in those parts of the country where soil acidity is a problem; (4) as a source of lime; (5) as a chemical raw material in glass making, acid neutralization and other processes; and (6) as dimension stone. Limestone, but not dolomite, is used as the basic raw material in the manufacturing of Portland cement. Dolomite, but not limestone, is an important ingredient in high-grade refractories.

D.2.4 Clay

The following descriptions of clays are from Tingley et al. (1998). Clay is a natural, fine-grained material composed mostly of one or more of a group of minerals known collectively as the clay minerals. Clay minerals are hydrous silicates composed mainly of silica, alumina, and water. Some clay minerals contain significant amounts of alkali metals, alkali earths, and iron. As mineral commodities, clays can be classified into several distinct groups, and clay commodities are subdivided into common clay, bentonite, kaolin, and hormites. Most clays are mined from open pits with waste-to-clay ratios ranging from 0.25:1 for common clays to 7:1 for kaolin (Virta, 1993). A small number of clay mines are underground operations.

Common clay is used mainly in construction products such as bricks, roofing tiles, and Portland cement. It is also used in pottery and as filler in paint. The term includes a variety of naturally occurring clay minerals, including illite, kaolinite, and smectite.

Specialty clays are used for various industrial purposes. Bentonite is composed of one or more varieties of smectite (chiefly montmorillonite). High-swelling or sodium bentonites have active colloidal properties, forming gel-like matter when added to water. They are widely used as a drilling mud, and as a binder in foundry sand and pelletized iron ores. High-swelling bentonites are relatively rare in the United States, and only minor amounts of such clay come from Nevada. A non-swelling magnesian bentonite, saponite, is produced in moderate amounts in Nevada.

Kaolin has many industrial applications, including uses as fillers, coating agents, extenders, binders, and whitening agents, and in ceramics. Eight deposits of kaolinite and the related clay mineral halloysite occur in Nevada (Papke, 1973).

Hormite clays include the minerals palygorskite, which is mined in large amounts in Georgia and Mississippi, and sepiolite, which is mined in moderate amounts in Nevada. These are magnesian clays with fibrous structure that are used mainly as absorbents and in saltwater drilling.

D.2.5 Decorative and Dimension Stone

Decorative stone is broadly defined as any stone used for its color, texture, or general appearance. Decorative stone is not generally used for structural or load-bearing applications, so strength and durability are not as important as aesthetic considerations (Barker and Austin, 1994). Dimension stone is a type of building stone that is cut to specific sizes or dimensions. Surfaces may be textured, smoothed, or polished to precise specifications, and can take many forms. Tile and facing sheets are made from thin panels of stone that often have a specified surface. Large finished blocks of dimension stone are prepared as monument stone, including grave markers and statues. Stone shaped into irregular pieces along natural fractures can be used for wall construction and roofing slate. Large blocks of rough-hewn stone are used in the construction of retaining walls and bridges (Power, 1994).

In general, commercial building stone comes from deposits of durable rock with few fractures. The use of rock as building stone is governed by a combination of unique physical properties, cost, and aesthetic appeal. Technical specifications and standards define acceptable physical properties of building stone and form the basis for the selection of natural stone for construction applications. Power (1994) includes a discussion of decorative stone products, as well as the aesthetic and physical properties of raw materials used to produce such decorative-stone products.

D.2.6 Diatomite

Diatomite is a very pure sedimentary accumulation of opaline diatom skeletons, or frustules (Breese, 1994). Because diatomite is composed of physically delicate and chemically metastable material, diatomite deposits do not endure significant burial and compaction, or diagenetic alteration. As such, diatomite deposits older than Tertiary age have not been discovered, and are not likely to exist (Breese, 1994). While diatomite deposits can originate in both marine and lacustrine depositional environments, only lacustrine diatomite deposits exist in the region of the corridor.

As described by Kadey (1994), several environmental factors are necessary for the accumulation of lacustrine diatomite deposits, including large shallow basins (generally less than 35 meters deep) to allow photosynthesis for both benthonic and pelagic diatoms; minimal deposition of clastic material; an absence of toxic constituents, primarily soluble salts; an abundant supply of nutrients; and an abundant supply of soluble silica, usually in the form of volcanic ash. While volcanic ash is not the only source of soluble silica, every commercial diatomite deposit in Nevada, and almost all worldwide, are associated with volcanic tuffs.

D.2.7 Fluorspar/Fluorite

The following information of is from Tingley et al. (1998). The commercial name for the mineral fluorite is "fluorspar." Pure fluorite contains 51 percent calcium and 49 percent fluorine and is used extensively in mineral form. It is the raw material for most of the world's fluorine compounds. There are three market grades of fluorspar: acid-grade fluorspar (acidspar), used to manufacture hydrofluoric acid, which is an intermediate product in the manufacture of industrial fluorine compounds; ceramic-grade fluorspar, mainly used in glass making; and metallurgical-grade fluorspar (metspar) that is mainly used as metallurgical flux. Acidspar typically contains not less than 97 percent calcium fluoride and less than 0.10 percent water, 1.5 percent silicon dioxide, and 0.10 percent sulfur. Ceramic-grade fluorspar requires a minimum of 97 percent calcium fluoride, under 3.0 percent silica, low calcium and iron, and only traces of lead and zinc. In the United States, metspar generally contains at least 60 percent fluorspar, not more than 0.30 percent sulfide sulfur, and less than 0.50 percent lead.

Most of the fluorspar mined in Nevada has come from replacement deposits in Paleozoic carbonate rocks, but significant production has come from a vein deposit in Tertiary volcanic rock, and breccia pipe deposits in Paleozoic rock (Papke, 1979).

D.2.8 Lithium

Worldwide, lithium-bearing minerals occur primarily in felsic pegmatites and in brines (Kunasz, 1994). Of these two major deposit types, only brine-type lithium deposits are known to exist within the vicinity of the corridor.

In Nevada, lithium-bearing brines can form in playas in closed drainage basins, via solar evaporative concentration, and infiltration of lithium-rich geothermal spring water. Lithium brines may also form as meteoric water leaches through lithium-rich felsic volcanic rocks, or via in-place groundwater leaching of lithium-rich, basin-fill sediments derived from lithium-rich felsic volcanic rocks.

D.2.9 Natural Aggregate (including Sand and Gravel)

The following information is primarily from Tingley et al. (1998). Natural aggregate consists of a variety of materials used to provide bulk and strength in Portland cement, asphalt concrete, fill, road base and loose road surfacing, railroad ballast, concrete block, and stucco. Mined natural materials provide most of the construction aggregate used in the United States, although recycled materials such as crushed glass and smelter slag are used, as well as manufactured lightweight aggregate. Sand and gravel, crushed stone, and volcanic cinders are mined materials that are currently used for construction aggregate in Nevada.

In southern Nevada, almost all sand and gravel production is from alluvial fan deposits, with minor production from fluvial deposits in active stream channels. Sand and gravel suitable for most construction aggregate is composed of clean, uncoated, properly shaped and sized detritus that is sound and durable. Sand and gravel that contains excessive amounts of clay, organic matter, soluble minerals, or friable altered or weathered materials generally make poor aggregate, although some of these undesirable materials can be removed by screening and washing.

Many different rock types are used in crushed stone, and the types used are determined mainly by availability and rock quality. All rock types must meet the same, or more stringent, soundness and durability requirements for sand and gravel, and therefore must not contain reactive minerals or be weakened by alteration. Extremely hard or abrasive rock types are generally not used in crushed stone because of the high crushing and screening. For most uses, it is important that the rock break into more or less equal-size fragments when crushed; platy rocks such as slate generally make poor aggregate. Some types of crushed stone are particularly desirable for specific uses. For example, fine-grained basalt is commonly used in asphalt concrete, and crushed rhyolite is used in lightweight Portland cement and in concrete blocks. As is the case with sand and gravel, certain siliceous volcanic rocks, including rhyolite ash-flow tuffs, are unsuitable for Portland cement concrete-aggregate because of alkali-silicate reactivity.

Deposits of volcanic cinder are composed of loose fragments of scoriaceous basalt of andesite, generally found in relatively young cinder cones. Because they have low density, but are relatively strong structurally, volcanic cinders are used in lightweight aggregate for Portland cement and in concrete block. High-quality cinder deposits adjacent to major metropolitan markets, generally in the western United States, are prized because of their low mining and crushing costs. Cinder finds minor use as decorative stone and barbecue rock.

Quartzite is a metamorphic rock consisting mainly of quartz formed by recrystalization of sandstone. Sandstone and other sedimentary rock buried deep in the earth's upper crust can undergo regional or contact-thermal metamorphism where heat and pressure cause recrystalization of silica in the sand to quartz. Quartzite may also include unmetamorphosed sandstone where the entire rock mass has been cemented with secondary silica, such that the rock breaks across individual sand grains, rather than around them.

Mining of all aggregates, whether for sand and gravel, crushed rock, or volcanic cinders, is by open-pit methods. Use of aggregate is generally restricted to nearby sources because of the high costs associated with long-distance shipping. Because most sand and gravel deposits are of unconsolidated material, drilling and blasting are not required, whereas crushed stone generally is produced from quarries where excavation requires drilling and blasting.

The annual domestic production of natural aggregate has been more than 1.5 billion short tons for more than 25 years, except during the recession years of 1981 through 1983 (Tepordei, 1993a, 1993b). The value of domestic crushed stone and sand and gravel exceeds the value of any other mineral commodity produced in the United States. Production of natural aggregate within the corridor is minor, consisting of a few small sand and gravel pits, a volcanic cinder mine, and a quartzite quarry.

D.2.10 Perlite

Perlite refers to a glassy volcanic rock of rhyolitic composition that has a perlitic (onionskin or pearl-like) structure. The following descriptions of perlite are from Breese and Barker (1994).

Typical perlite contains 2 to 5 percent combined water and, when heated to a specific temperature, “pops” or suddenly expands like popcorn to produce a lightweight cellular product that has many commercial applications. When grains of crushed perlite are abruptly heated to the temperature of incipient fusion, their contained water is converted to steam and they form light, fluffy, cellular particles. The volume of the crude perlite may be expanded 4 to 20 times at temperatures of 1,400 and 2,000 degrees F. The optimum temperature at which a given perlite will “pop” depends on both its water content and its chemical composition. Variations in the composition of the glass affect the softening point, type, and degree of expansion; size of the bubbles and wall thickness between them; and the porosity of the product. Further composition will affect whether the expanded material will be fluffy and highly porous or a glazed, glassy particle having a low porosity.

Expanded perlite is graded by bulk density. The most widely used grades range in bulk density from 7 to 15 pounds per cubic foot. Color, appearance, and fluffy versus glassy are important considerations in many end uses. Expanded or “popped” perlite finds important uses in many products and industrial applications. The more important uses are in the construction industry for insulation, lightweight concrete aggregate, acoustical plaster and tile, wallboard, and other formed products; in filter media; in agriculture as a fertilizer extender, insecticide carrier, and soil conditioner; as a filler for paper and plastic products; as a texturizer in paints; and as an abrasive (Tingley, 1998).

Siliceous volcanic flow rocks (typically rhyolitic in composition) commonly contain segregations of volcanic glass, but their “popping” characteristics must be determined.

D.2.11 Pozzolan

Pozzolan is a siliceous material of volcanic origin (Bates and Jackson, 1983). The volcanic rocks include ash and certain types of leucitic tuff. Pozzolan materials are ground together with Portland cement to produce specialty hydraulic cement with unique properties, such as high strength and increased resistance to saline and acidic environments.

Pozzolans are not known to occur within the corridor. Several miles north of the corridor near Panaca, pozzolan is mined from volcanic ash beds in Tertiary lakebeds.

D.2.12 Pumice/Pumicite

The following descriptions of pumice and pumicite are from Tingley et al. (1998) and Kleinhampl and Ziony (1984). Pumice and pumicite are acidic, glassy volcanic materials having a chemical composition similar to that of rhyolite or dacite. They are often referred to as volcanic ash, dust, tuff, rhyolite sand, and pumaceous rhyolite. Pumice differs from pumicite in the mode of formation and textural characteristics. Both are normally white to light gray and are composed primarily of silica with lesser amounts of alumina, potash, soda, lime, magnesia and iron oxide. In general, they are chemically inert, but can be reactive when in a very fine granular condition.

Pumice is a highly cellular, dull, glassy material. The open cavities or cells are separated by thin glassy walls. Because of its sponge-like character, dry pumice is lightweight and can float on water. Pumice originates from molten lava that is highly impregnated with water vapor and other gases. The release of pressure upon extrusion of the lava allows the gases to expand, and the rapid cooling of the molten material preserves the mass of gas bubbles. Silica-rich lavas solidify at high temperatures and thus are found close to centers of volcanic activity. Deposits of pumice occur as irregular, lens-like bodies closely associated with other volcanic flows near major vents.

Pumicite consists of finely divided, closely packed, angular, glassy fragments ranging in size from about 1/8 inch to extremely fine powder. Despite the fineness, pumicite will sink in water. It originates as volcanic ejecta blown into the air by volcanic eruptions. The airborne particles are sorted in weight and size by gravity and wind and, after falling to the earth's surface, may be further segregated by the action of wind and water. Thus, pumicite can occur as thin blankets spread over wide areas or as thick accumulations in local basins. In either case, the deposition can be distant from the original source.

D.2.13 Silica

Most silica in the United States is mined from quartz sand, quartz pebble, and quartzite deposits; minor production comes from chert or novaculite (cryptocrystalline quartz) deposits, quartz pegmatites, and quartz veins (Bolen, 1992). Silica sand is used in the manufacture of glass, and in foundry sands used to cast iron-, aluminum-, and copper-base alloys. Silica sand

and lithified varieties of silica are used in refractory sands and abrasives, for metallurgical applications as fluxes, and for filtration and oil-well fracturing. Ground silica is used in fillers and extenders. Cryptocrystalline silica is produced in minor amounts for abrasive applications such as whetstones, and as a grinding media in pebble mills (Bolen, 1992).

Quartz veins are mined in small amounts for optical and electronic quartz; in the past, large quartz vein deposits were mined for metallurgical and refractory silica (Tingley, 1998).

D.2.14 Saline Minerals

The saline minerals include, among others, sodium chloride (halite), sodium carbonates (trona, nahcolite, et al.), sodium sulfates (thenardite, mirabilite, gaylussite, et al.), and potassium chloride (sylvite).

Saline minerals are commercially valuable because of their generally high solubilities in water, which allows relatively easy liberation of sodium or potassium ions. Worldwide, saline minerals occur in a wide variety of deposit types (Kostick, 1994).

Within and near the corridor, only the evaporite deposits and brines of playas have yielded sodium and potassium minerals (Papke, 1976). In the playas of the corridor and the rest of the Great Basin, sodium minerals occur much more commonly and in much more variety than do potassium minerals (Papke, 1976).

As described by Kostick (1994), saline minerals in playa environments develop from solar evaporation of alkaline and saline lakes, which are generally located within closed drainage basins in arid regions. In ephemeral playa lakes, repeated cycles of water influx, settlement of suspended sediment, and subsequent evaporation of the remaining water produce interbedded clastic and evaporite layers (Nichols, 1999). Papke (1976) indicates that all playa deposits do not necessarily form due to the evaporation of surface water; discharge of highly saline groundwater or brines by capillary rise and subsequent evaporation can result in shallow subsurface concentrations of saline minerals. Some playas are saturated at depth with brines that can also be processed for their dissolved potassium and sodium.

The sodium, potassium, and other ionic constituents in playa deposits and brines generally originate as meteoric surface water and from groundwater that can leach ionic constituents from rocks surrounding the playa. Likewise, chemical constituents in hydrothermal spring water can also be a significant factor in the mineralogy of playa lake evaporites and brines. Hence, variations in the chemistry of evaporite deposits and brines can exist from one basin to another (Kostick, 1994).

D.2.15 Sulfur

Sulfur can form in various ways, but is most frequently the result of volcanic activity (Dana, 1932). Sulfur occurs in the gases given off at fumeroles, at times being deposited as a direct sublimation product. It also forms by the incomplete oxidation by oxygen of hydrogen sulfide gas derived from volcanic sources. Further, it can form by decomposition of hydrogen sulfide that frequently occurs in the waters of thermal springs. This may come from volcanic sources, by the action of acid water on metallic sulfides, or by the reduction of sulfates, especially gypsum.

Sulfur is most commonly found in Tertiary sedimentary rocks and is most frequently associated with gypsum and limestone, often in clay rocks, and frequently associated with bituminous deposits. It can occur in fine crystals but more often in compact masses, crusts, and kidney or stalactitic forms, or as friable aggregates. Sulfur is used, among other uses, in the manufacture of sulfuric acid; during the manufacture of paper from wood pulp; in making matches, gunpowder, fireworks, and insecticides; for vulcanizing rubber; and for medicinal purposes.

D.2.16 Zeolites

In general, zeolite mineral deposits occur in felsic pyroclastic or felsic volcanogenic sedimentary rocks, via pseudomorphic replacement of aluminosilicic glass (Olson, 1994). Such conditions are generally restricted to playa lake environments adjacent to felsic volcanic centers, or to subaerially exposed felsic pyroclastic units (Papke, 1972; Olson, 1994). Sheppard (1983) classifies the two most economically viable zeolite deposit types based on the hydrogeologic setting at the time of formation. These deposit types are known as closed-system and open-system types, and are the dominant types of zeolite deposits in Nevada.

Closed-system zeolite deposits form in closed hydrogeologic basins where alkaline/saline groundwater reacts with volcanic glass. Such deposits generally display a "basinward lateral zonation" with respect to zeolite mineral types. In such a deposit, volcanic glass grades from an unaltered state at basin margins, through a zone of complete replacement by zeolites, and finally into a zone of authigenic potassium feldspar at the basin center. The zeolitized portion of closed-system deposits generally displays a gradation from an outer zone of erionite, chabazite, and phillipsite replacement to an inner zone of analcime replacement (Sheppard, 1983; Olson, 1994).

Open-system zeolite deposits form in open, freshwater hydrogeologic basins, where volcanic glass is altered by meteoric groundwater. Open-system zeolite deposits commonly display a vertical zonation, with a mineralogical gradation from montmorillonite in the upper reaches of the deposit, to clinoptilolite and mordenite in the lower reaches of the deposit (Sheppard, 1983; Olson, 1994).

Zeolite minerals are not chemically stable over long stretches of geologic time. As such, the discovery of economically valuable zeolite deposits older than Cretaceous age is unlikely (Olson, 1994).

D.3 OIL AND GAS

In 1995, the U. S. Geological Survey (USGS) and the Minerals Management Service completed an assessment of oil and gas resources in the conterminous United States (USGS National Oil and Gas Resource Assessment Team, 1995; see also Beeman et al., 1996; Charpentier et al., 1996; Gautier et al., 1996). The assessment identified 72 provinces, for which estimates were developed of undiscovered oil and gas resources. The assessments were based on geological, structural, geochemical, and geophysical data, as well as data from oil reservoirs and fields. The evaluations were made on the basis of "hydrocarbon plays." As described in the assessment, a "play" is "*...a set of known or postulated oil and (or) gas accumulations sharing similar geologic, geographic, and temporal properties, such as source rock, migration pathway, timing, trapping mechanisms, and hydrocarbon traps*." The assessment team identified hypothetical and confirmed "plays" for each of the 72 provinces. Plays that are *confirmed* for a particular province must contain one or more accumulations of at least 1 million barrels of oil (MMBO) or 6 billion cubic feet of gas (BCFG). Plays that are *hypothetical* for a particular province contain evidence that the geology of the province is suitable for that play, even though oil and gas may not have been produced in large quantities or even discovered.

The Caliente corridor spans parts of 2 of the 72 provinces identified by the assessment team: the Eastern Great Basin Province and the Western Great Basin Province. Of the 11 confirmed and hypothetical plays identified in these 2 provinces, only 3 plays, all within the Eastern Great Basin Province, extend into the corridor (Peterson and Grow, 1995; Barker et al., 1995). These plays are the *Unconformity "A" Play* (confirmed), the *Late Paleozoic Play* (hypothetical), and the *Late-Paleozoic-Mesozoic (Central Nevada) Thrust Belt Play* (hypothetical). Each of these plays is discussed below.

D.3.1 Unconformity "A" Play (Play 1901)

The Unconformity "A" Play (Peterson and Grow, 1995) is the only confirmed play that intersects the corridor. In fields associated with this play, indurated and/or clay-weathered Tertiary valley-fill sediments overlie a wide variety of Paleozoic to Mesozoic sedimentary rocks and early to middle Tertiary extrusive and intrusive igneous rocks.

Reservoir rocks associated with this play have variable lithologies, including fractured and porous Paleozoic carbonate rocks (the Devonian Guillamette Limestone, the Devonian Simonson Dolomite, and the Pennsylvanian Ely Limestone); lacustrine, clastic, and carbonate beds of the Tertiary Sheep Pass Formation; and Oligocene ignimbrites of the Garrett Ranch Volcanics (Garside et al., 1988).

Source rocks associated with this play include Paleozoic carbonate rocks (such as the Mississippian Chainman Shale and the Devonian Pilot Shale), and Cenozoic clastic and carbonate rocks (the Tertiary Sheep Pass Formation [not present within the corridor]) (Peterson and Grow, 1995; Kleinhampl and Ziony, 1984).

Thermal maturity of source rocks varies widely throughout the corridor because of the complex tectonic and volcanic history of the region. West of the frontal edge of the Roberts Mountains thrust fault (~longitude 116° 30'), Mississippian and Devonian source rocks are generally overmature with respect to hydrocarbon generation (based on conodont color-index analyses in Harris et al., 1980). East of the Roberts Mountains thrust fault, Mississippian and Devonian rocks are thermally mature (Harris et al., 1980).

The oil fields in Railroad Valley produce from complex structural and structural-stratigraphic traps classified as "Unconformity A Play" fields. Traps may include folds, faulted folds, pinchouts, and other structures that place reservoir rocks in contact with Unconformity "A." In general, the most prolific fields are adjacent to basin-bounding faults. Because this play relies on the presence of Unconformity "A" at the base of valley-fill units, this play is confined to valley floors. Significant accumulations of natural gas are not associated with this play.

Reservoir rocks associated with this play probably exist throughout the valleys of the eastern Great Basin. However, the highly complex geology of this part of Nevada, along with the likely small size of oil accumulations, has tended to limit exploration.

Favorable Geologic Characteristics:

- Presence of valley-fill sediments.
- Presence of Devonian and Mississippian source rocks in thermally favorable terraines.
- Presence of fractured and/or porous Paleozoic and Cenozoic reservoir rocks (diverse lithologies).

D.3.2 Late Paleozoic Play (Play 1902)

The hypothetical Late Paleozoic Play (Peterson and Grow, 1995) assumes the preservation of structural and structural-stratigraphic reservoirs within the Paleozoic section. This play is independent of, and does not require the presence of, the Unconformity "A" reservoir seal.

Reservoir rocks associated with this play include carbonate rocks of the Devonian Guilmette and Simonson Formations; the Mississippian Joana and Monte Cristo Formations; marine and deltaic marine sandstone and siltstone beds of the Mississippian-Pennsylvanian Diamond Peak, Scotty Wash, and Chainman Formations; and the Pennsylvanian-Permian Ely, Bird Spring, Arcturus, Park City, and Oquirrh Formations.

Source rocks associated with this play include organic-rich marine sediments of the Mississippian Chainman Formation, the organic-rich Mississippian-Pennsylvanian Manning Canyon Formation, the organic-rich Permian Phosphoria Formation and equivalents, and dark marine shales and shaly carbonates of Pennsylvanian and Permian age.

West of the frontal edge of the Roberts Mountains thrust fault (~longitude 116° 30'), Mississippian and Devonian source rocks are generally overmature with respect to hydrocarbon generation (based on conodont color-index analyses in Harris et al., 1980). East of the Roberts Mountains thrust fault, Mississippian and Devonian rocks are thermally mature (Harris et al., 1980). In contrast, conodont color-index analysis (Harris et al., 1980) indicates that thermally mature Permian and Pennsylvanian source rocks exist up to 50 miles west of the Roberts Mountains thrust fault in northwestern Nye County. The Late Paleozoic Play requires faulting or the presence of low-permeability beds within the Paleozoic section to trap hydrocarbon accumulations. Because the play does not rely on the Unconformity "A" seal, exploration would not be limited to valley areas. The Late Paleozoic Play is the only play in the corridor that would be expected to yield appreciable quantities of natural gas (USGS National Oil and Gas Resource Assessment Team, 1995).

Favorable Geologic Characteristics:

- Presence of Devonian through Permian reservoir rocks.
- Presence of Devonian through Permian source rocks in thermally favorable terraines.

D.3.3 Late Paleozoic-Mesozoic (Central Nevada) Thrust Belt Play (Play 1906)

This hypothetical play assumes Laramide-age thrusting of Devonian carbonates and other Paleozoic clastic reservoir rocks over Mississippian-age, organic-rich source rocks.

Reservoir rocks associated with this play include carbonate rocks of Silurian and Devonian age, and clastic rocks of Mississippian, Pennsylvanian, and Permian age.

Source rocks associated with this play include Mississippian, Devonian, and other Paleozoic organic-rich shales.

As of August 2005, this play had not been confirmed in Nevada. An oil discovery in 2003 associated with the late-Mesozoic Sevier orogenic belt near Richfield, Utah, however, suggests that the Central Nevada Thrust Belt Play may yet produce oil in Nevada (USGS, 2005; Bill Wilson, BLM, Personal comm., 2005).

Favorable Geologic Characteristics:

- Presence of carbonate rocks of Silurian and Devonian age and clastic rocks of Mississippian, Pennsylvanian, and Permian age.
- Presence of Mississippian, Devonian, and other Paleozoic organic-rich source rocks in thermally favorable terraines.

D.4 URANIUM

The following descriptions of uranium in Nevada are derived largely from Tingley et al. (1998) and Garside (1973). Uranium is an important energy source because one isotope, uranium 235, upon splitting (fission), releases large amounts of energy. This readily fissionable isotope makes up about 0.7 percent of natural uranium. Uranium is used to power nuclear reactors for the generation of electricity and in nuclear weapons. Large portions of military inventories of highly enriched uranium have been converted to nuclear fuel over the past several decades (Pool, 1995).

Occurrences of uranium minerals, or anomalous amounts of uranium or radioactivity, are not uncommon in Nevada's mining districts (Garside, 1973). It is likely that such sporadic uranium concentrations are related to redistribution by hydrothermal fluids in these districts, especially in those hosted by volcanic rocks that may have uranium available in amounts that could be moved and concentrated. No anomalous uranium concentrations are known to form uranium orebodies in Nevada's mining districts; rather, they are considered a curiosity (Tingley et al., 1998).

Volcanogenic uranium deposits develop in a wide variety of volcanic environments. They consist of disseminations and veins of uranium oxide minerals associated with shallow intrusive rhyolites in a near-surface environment (Wallace and Roper, 1981). In Nevada, volcanogenic uranium deposits and occurrences are known from siliceous sinter, siliceous veinlets, joint-surface coatings, cavity fillings, and a breccia pipe associated with a hot spring system (Burt and Sheridan, 1981). They are also found in rhyolitic ring domes and shallow intrusive rocks associated with caldera margins.

Volcanogenic uranium deposits in Miocene sedimentary rocks resemble sandstone uranium deposits but are included in the volcanogenic type because they occur close to volcanic centers and in the same districts as the volcanic-hosted deposits. Some of the scattered uranium occurrences in veinlets and breccias and disseminated in ash-flow tuffs in Nevada may represent redistribution of uranium by low-temperature groundwater (Garside, 1973).

APPENDIX E

FIGURES SHOWING MINERAL POTENTIAL FOR NON-METALLIC AND INDUSTRIAL MINERALS AND URANIUM

APPENDIX E

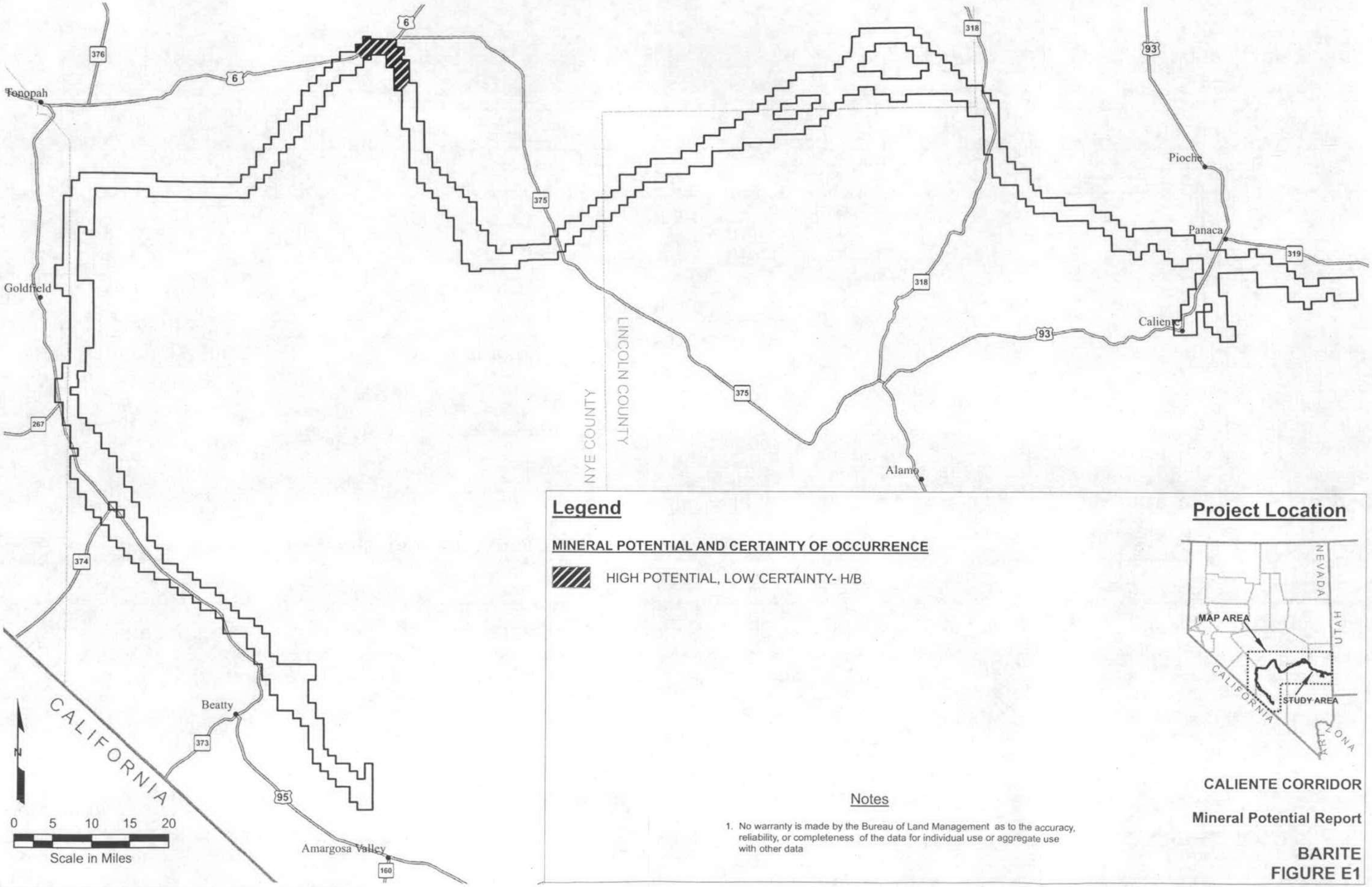
FIGURES SHOWING MINERAL POTENTIAL FOR NON-METALLIC AND INDUSTRIAL MINERALS AND URANIUM

TABLE OF CONTENTS

LIST OF FIGURES

Figure No.

E1	Barite
E2	Carbonate Rocks (Limestone and Dolomite)
E3	Clay
E4	Decorative and Dimension Stone
E5	Diatomite
E6	Fluorspar/Fluorite
E7	Natural Aggregates (including Sand and Gravel)
E8	Perlite
E9	Pozzolan
E10	Pumice/Pumicite
E11	Saline Minerals
E12	Silica
E13	Sulfur
E14	Zeolites
E15	Uranium
E16	Gemstones



Legend

MINERAL POTENTIAL AND CERTAINTY OF OCCURRENCE

HIGH POTENTIAL, LOW CERTAINTY- H/B

Notes

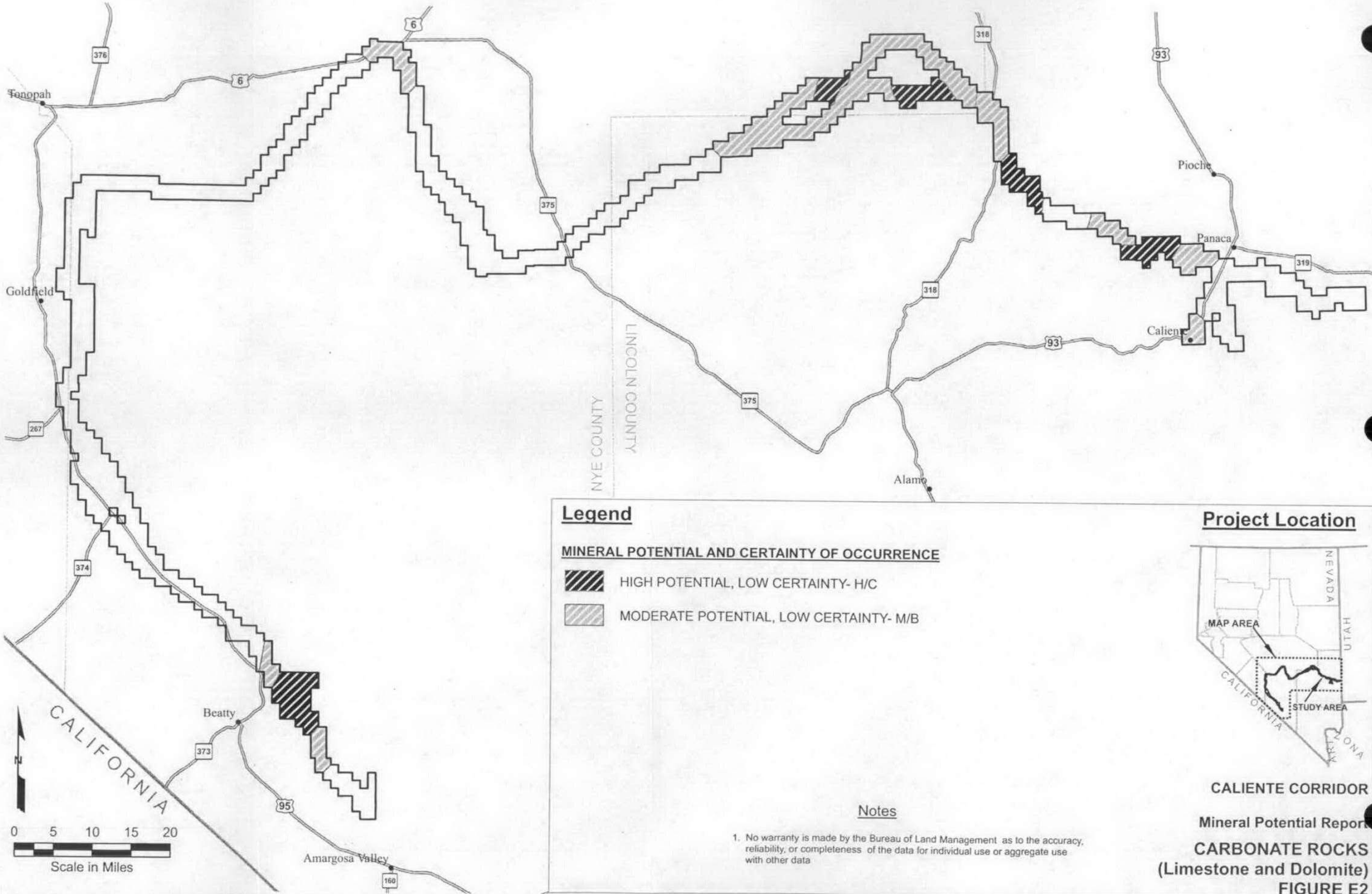
1. No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of the data for individual use or aggregate use with other data

CALIENTE CORRIDOR

Mineral Potential Report

BARITE
FIGURE E1

E:\21-1-20102\AV_mxd\20102-035_Fig_E1_BARITE.mxd BRL 10-25-05 Created with: ArcMap 9.0

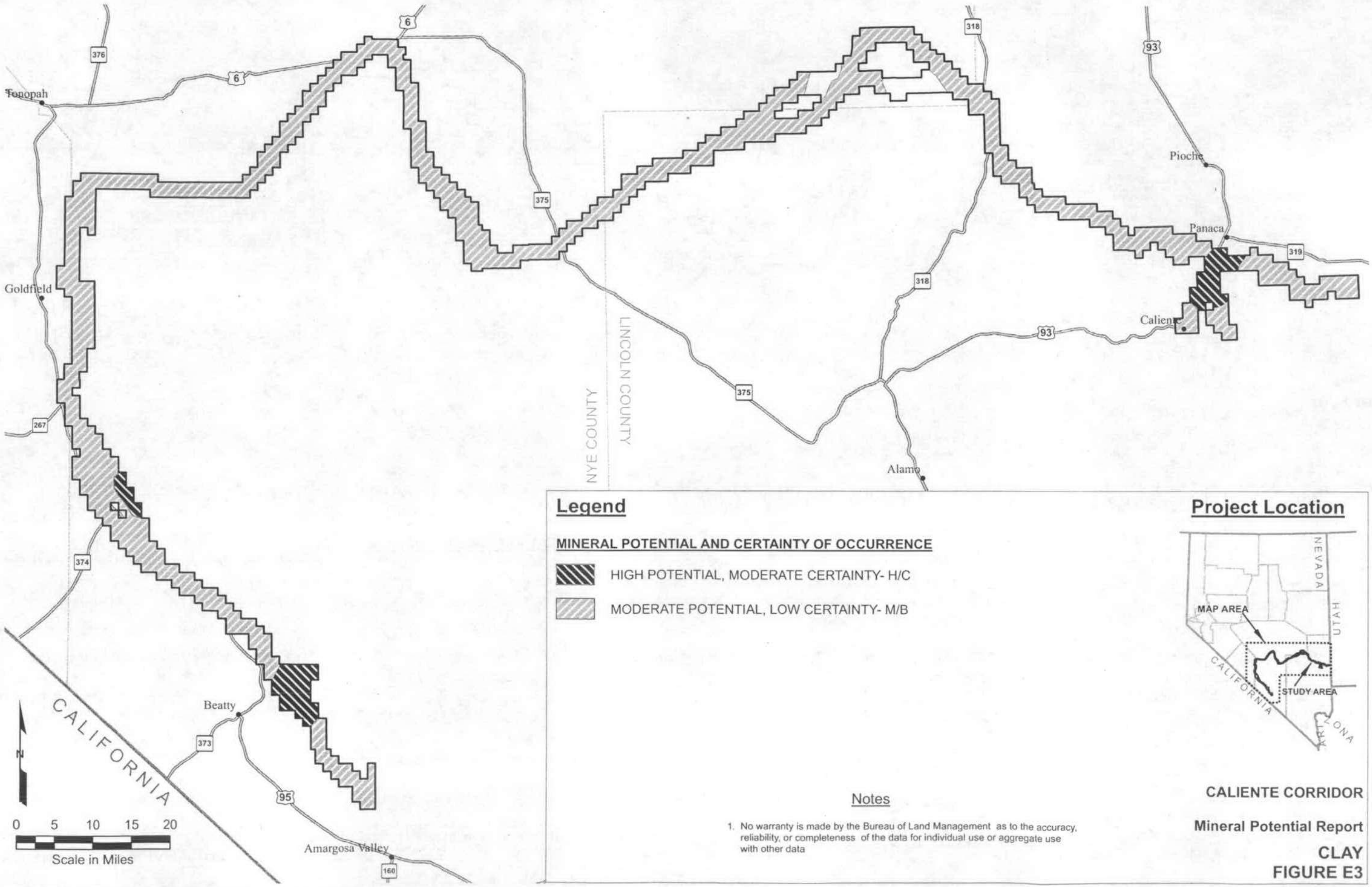


CALIENTE CORRIDOR

Mineral Potential Report

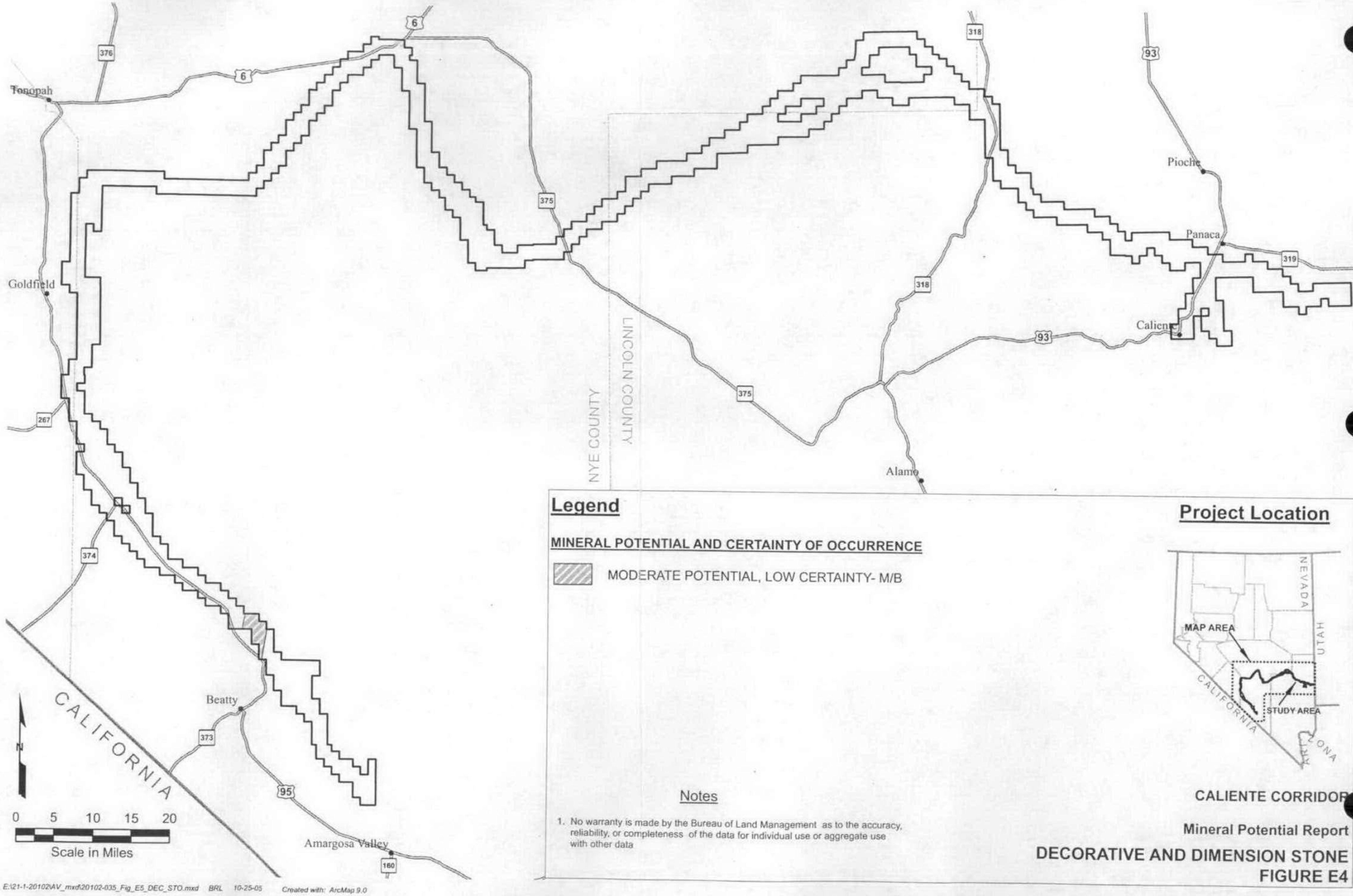
CARBONATE ROCKS
(Limestone and Dolomite)
FIGURE E2

E:\21-1-20102\AV_mxd\20102-035_Fig_E3_CARBONATES.mxd BRL 10-25-05 Created with: ArcMap 9.0

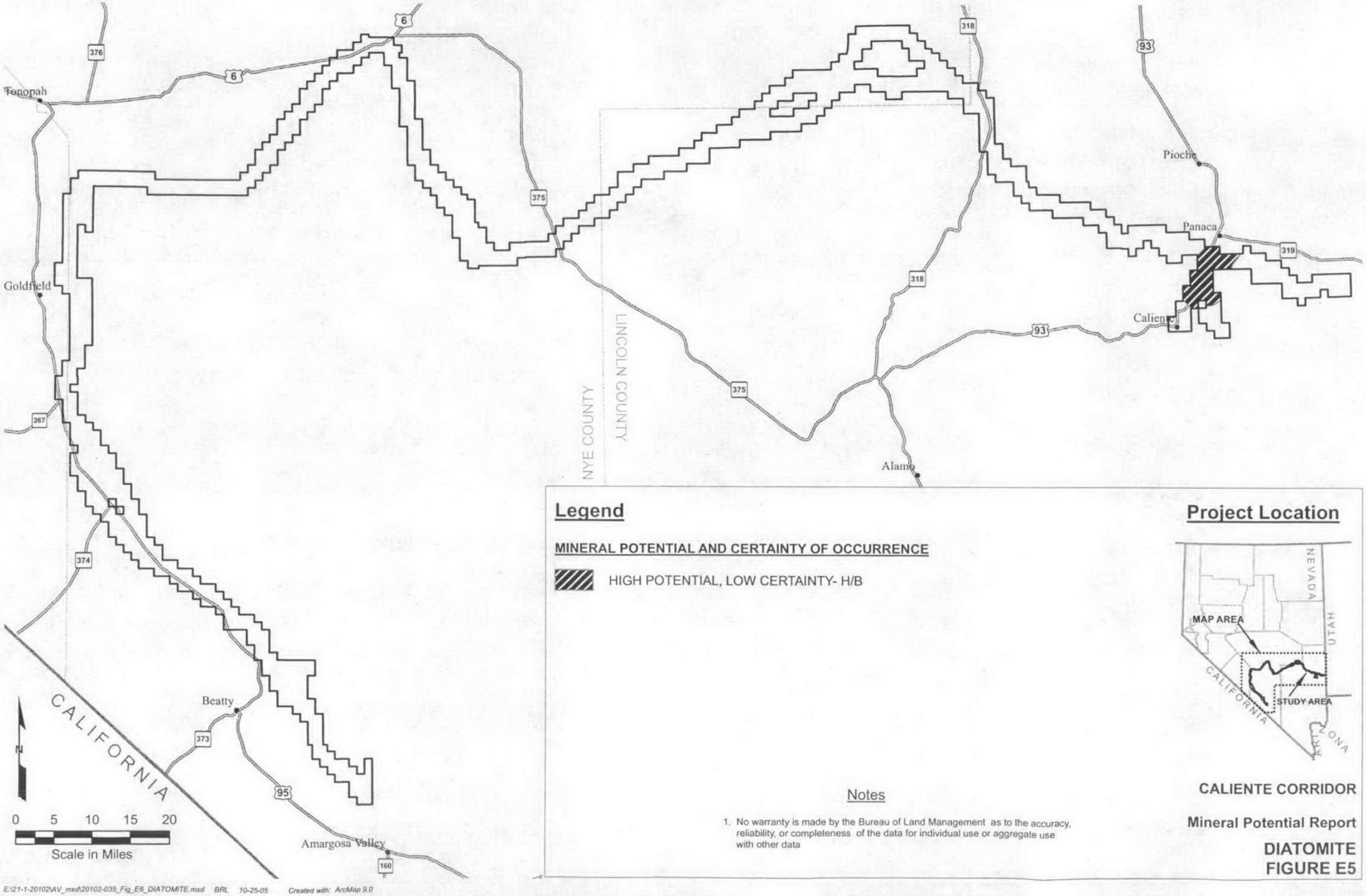


CLAY
FIGURE E3

E:\21-1-20102\AV_mxd\20102-035_Fig_E4_CLAY.mxd BRL 10-25-05 Created with: ArcMap 9.0



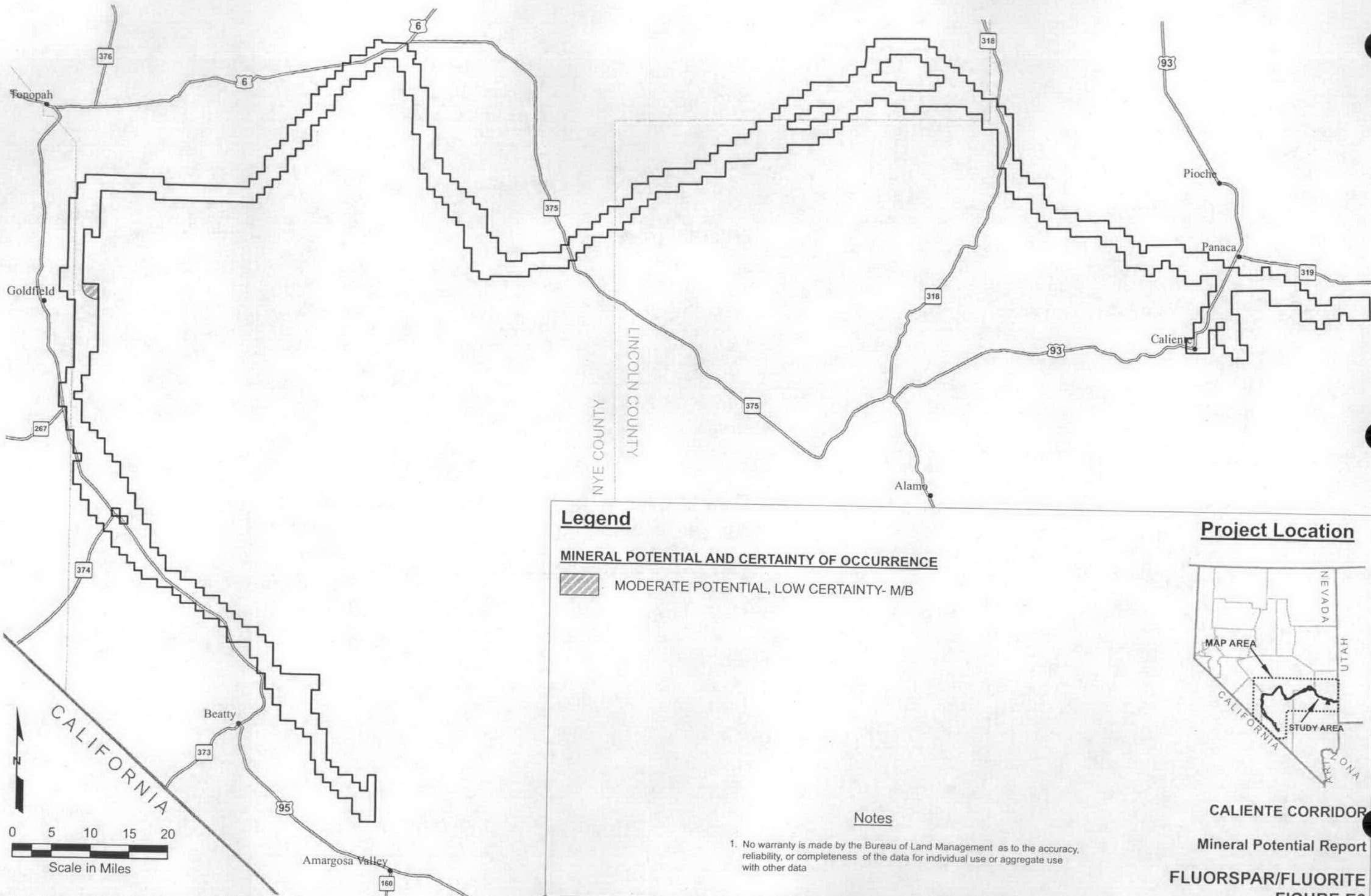
Tonopah
Goldfield
Beatty
Amargosa Valley
Alamo
Pioche
Panaca
Caliente
376
6
6
375
375
318
318
93
93
319
267
374
373
95
160
NYE COUNTY
LINCOLN COUNTY
CALIFORNIA
N
0 5 10 15 20
Scale in Miles
Legend
MINERAL POTENTIAL AND CERTAINTY OF OCCURRENCE
MODERATE POTENTIAL, LOW CERTAINTY- M/B
Project Location
NEVADA
UTAH
MAP AREA
STUDY AREA
CALIFORNIA
Notes
1. No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of the data for individual use or aggregate use with other data
CALIENTE CORRIDOR
Mineral Potential Report
DECORATIVE AND DIMENSION STONE
FIGURE E4
E:\21-1-20102\AV_mxd\20102-035_Fig_E5_DEC_STO.mxd BRL 10-25-05 Created with: ArcMap 9.0



CALIENTE CORRIDOR

Mineral Potential Report

DIATOMITE
FIGURE E5



Legend

MINERAL POTENTIAL AND CERTAINTY OF OCCURRENCE

MODERATE POTENTIAL, LOW CERTAINTY- M/B

Notes

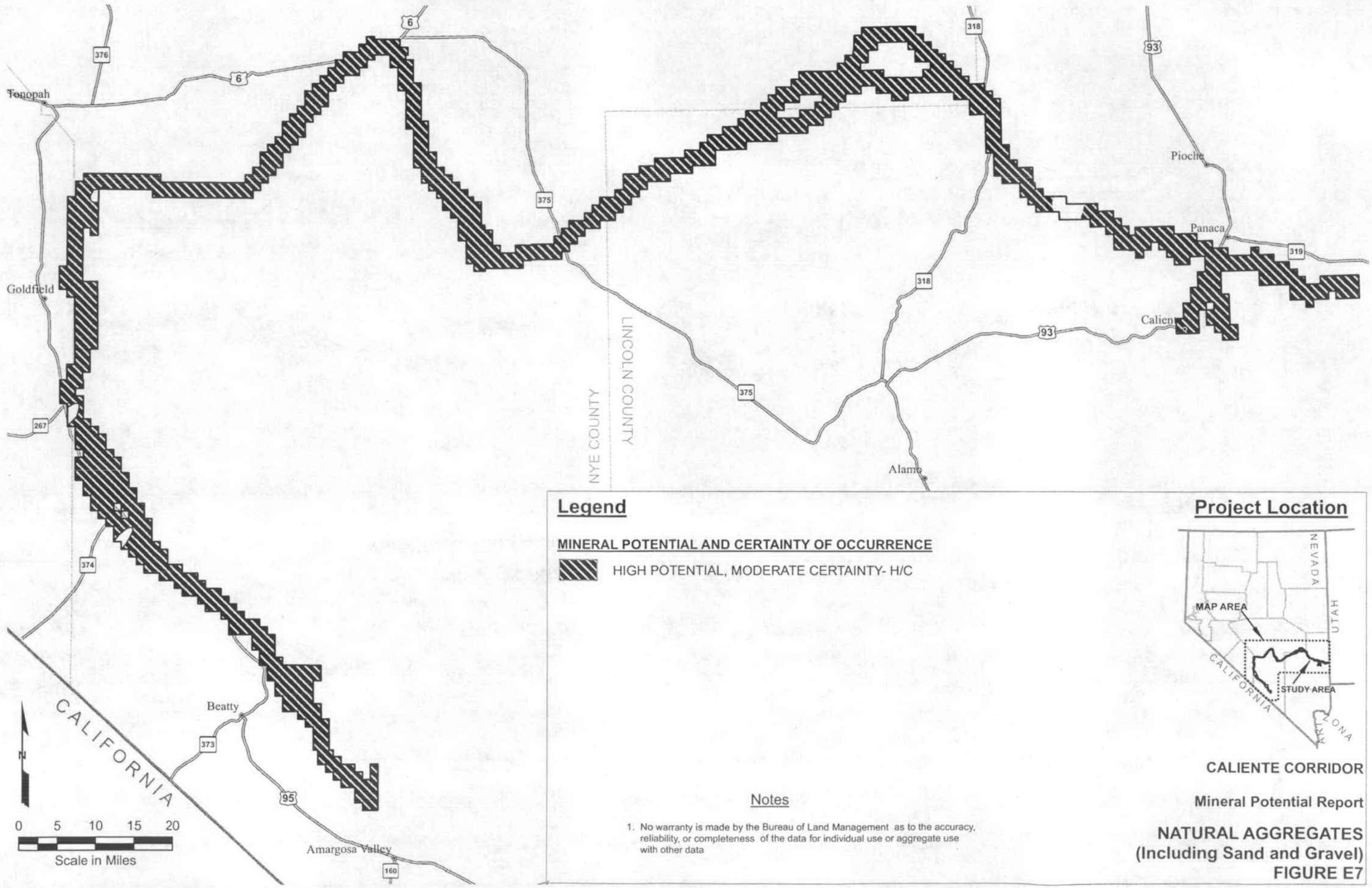
1. No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of the data for individual use or aggregate use with other data

CALIENTE CORRIDOR

Mineral Potential Report

FLUORSPAR/FLUORITE
FIGURE E6

E:\21-1-20102\AV_mxd\20102-035_Fig_E7_FLUORSPAR.mxd BRL 10-25-05 Created with: ArcMap 9.0



Notes

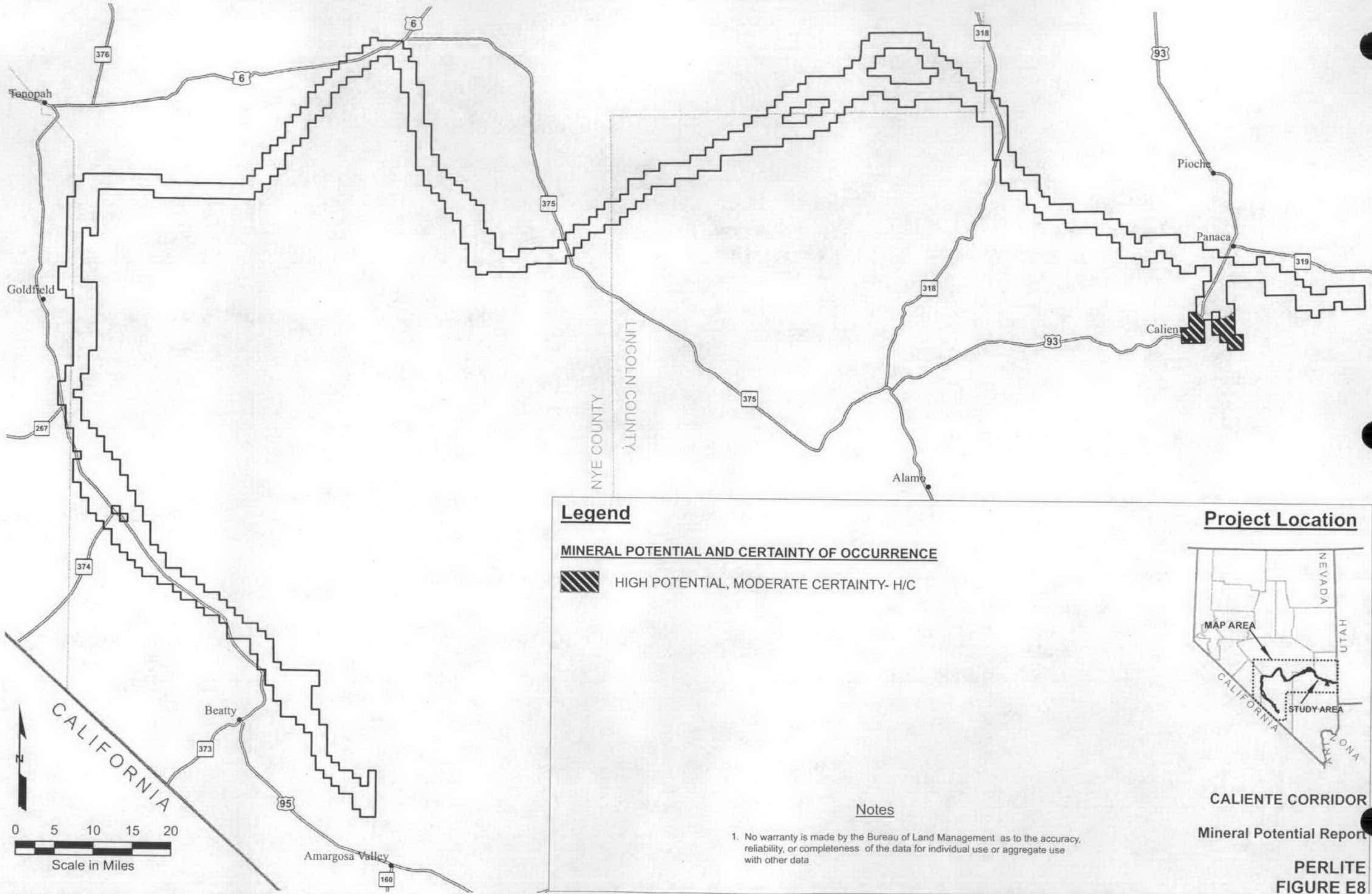
1. No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of the data for individual use or aggregate use with other data

CALIENTE CORRIDOR

Mineral Potential Report

NATURAL AGGREGATES
(Including Sand and Gravel)
FIGURE E7

E:\21-1-20102\AV_mxd\20102-035_Fig_E9_NAT_AGG.mxd BRL 10-25-05 Created with: ArcMap 9.0



Notes

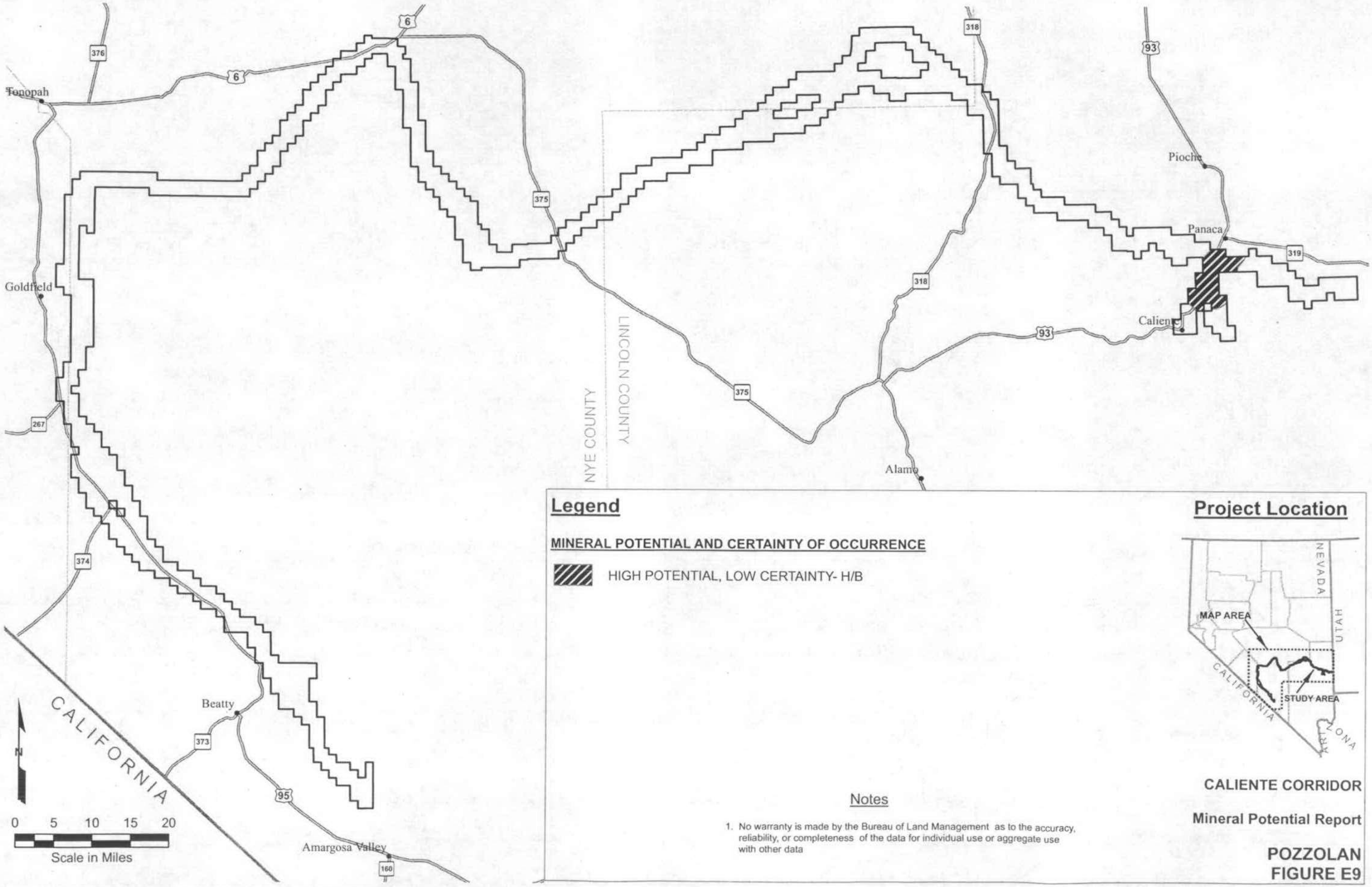
1. No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of the data for individual use or aggregate use with other data

CALIENTE CORRIDOR

Mineral Potential Report

PERLITE
FIGURE E8

E:\21-1-20102\AV_mxd\20102-035_Fig_E10_PERLITE.mxd BRL 10-25-05 Created with: ArcMap 9.0

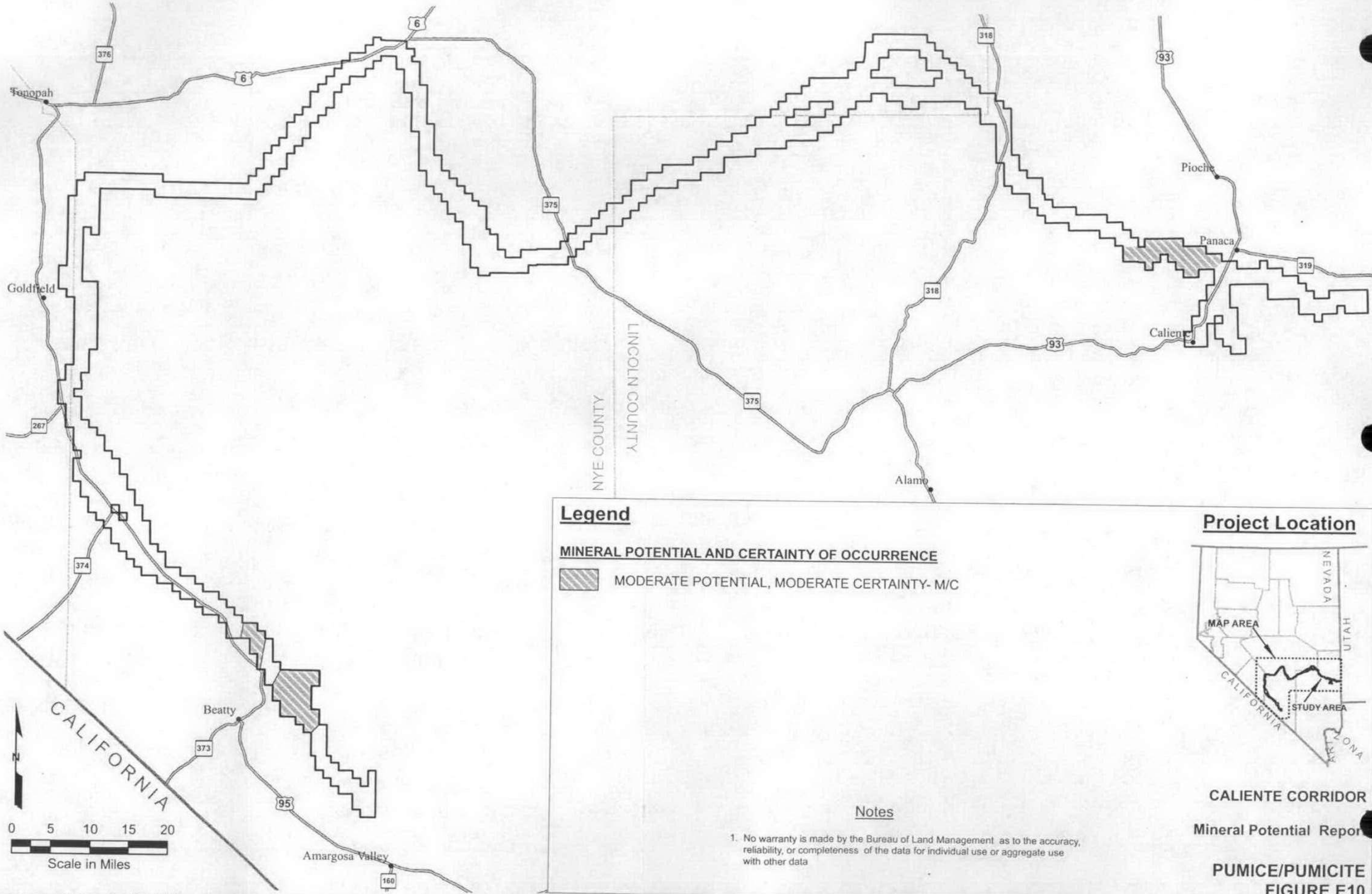


CALIENTE CORRIDOR

Mineral Potential Report

POZZOLAN
FIGURE E9

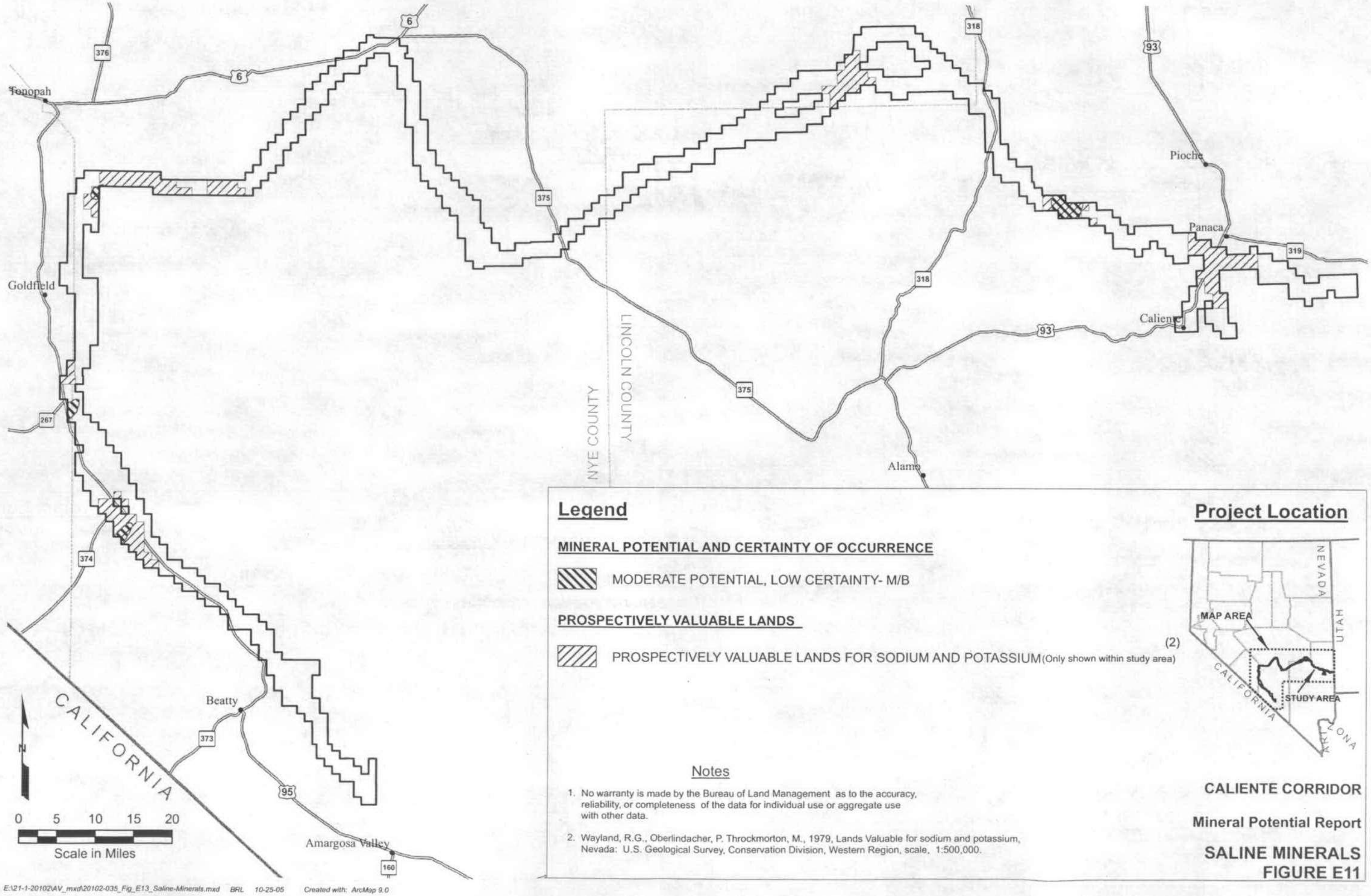
E:\21-1-20102\AV_mxd\20102-035_Fig_E11_POZZOLAN.mxd BRL 10-25-05 Created with: ArcMap 9.0



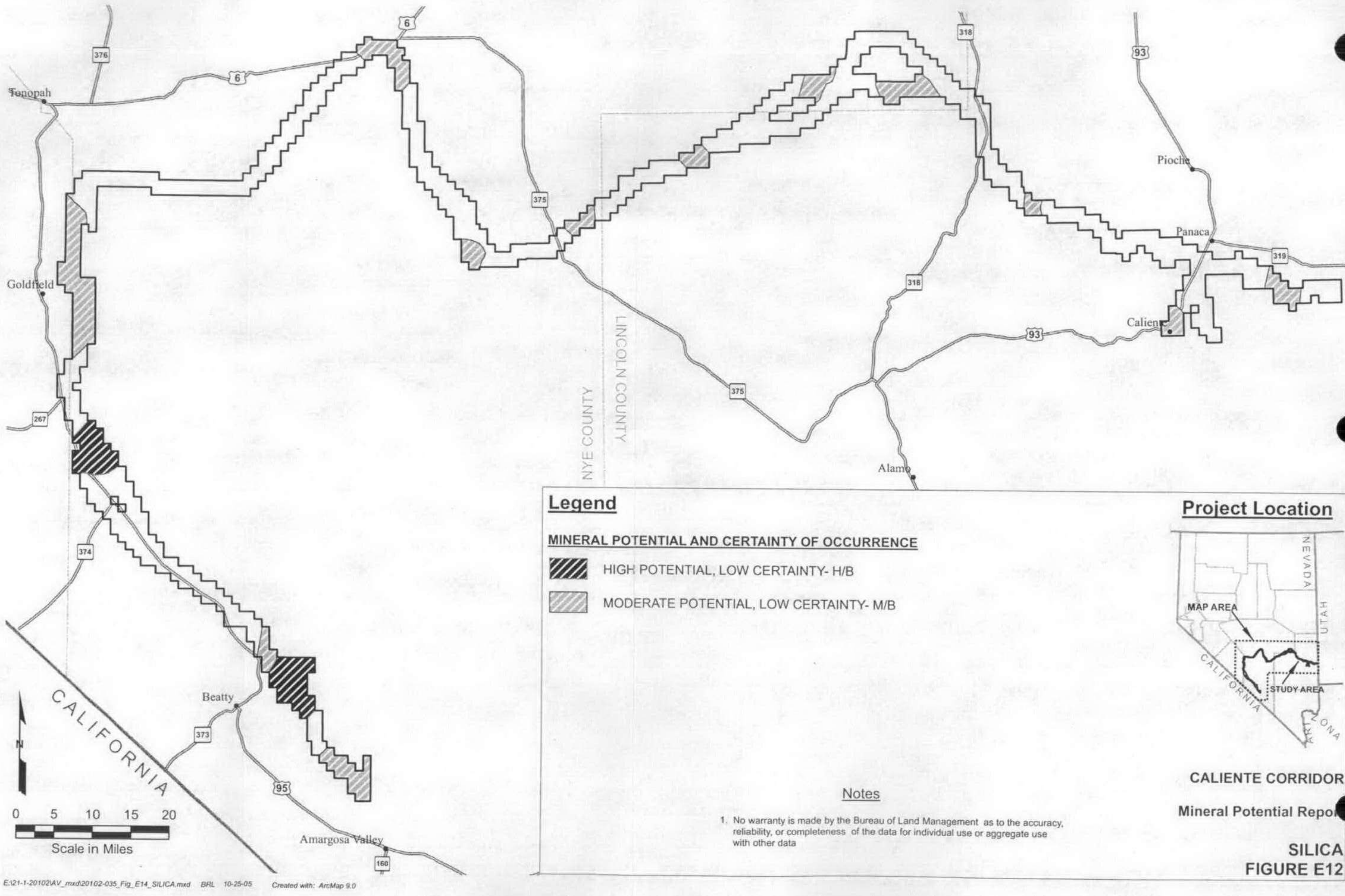
CALIENTE CORRIDOR

Mineral Potential Report

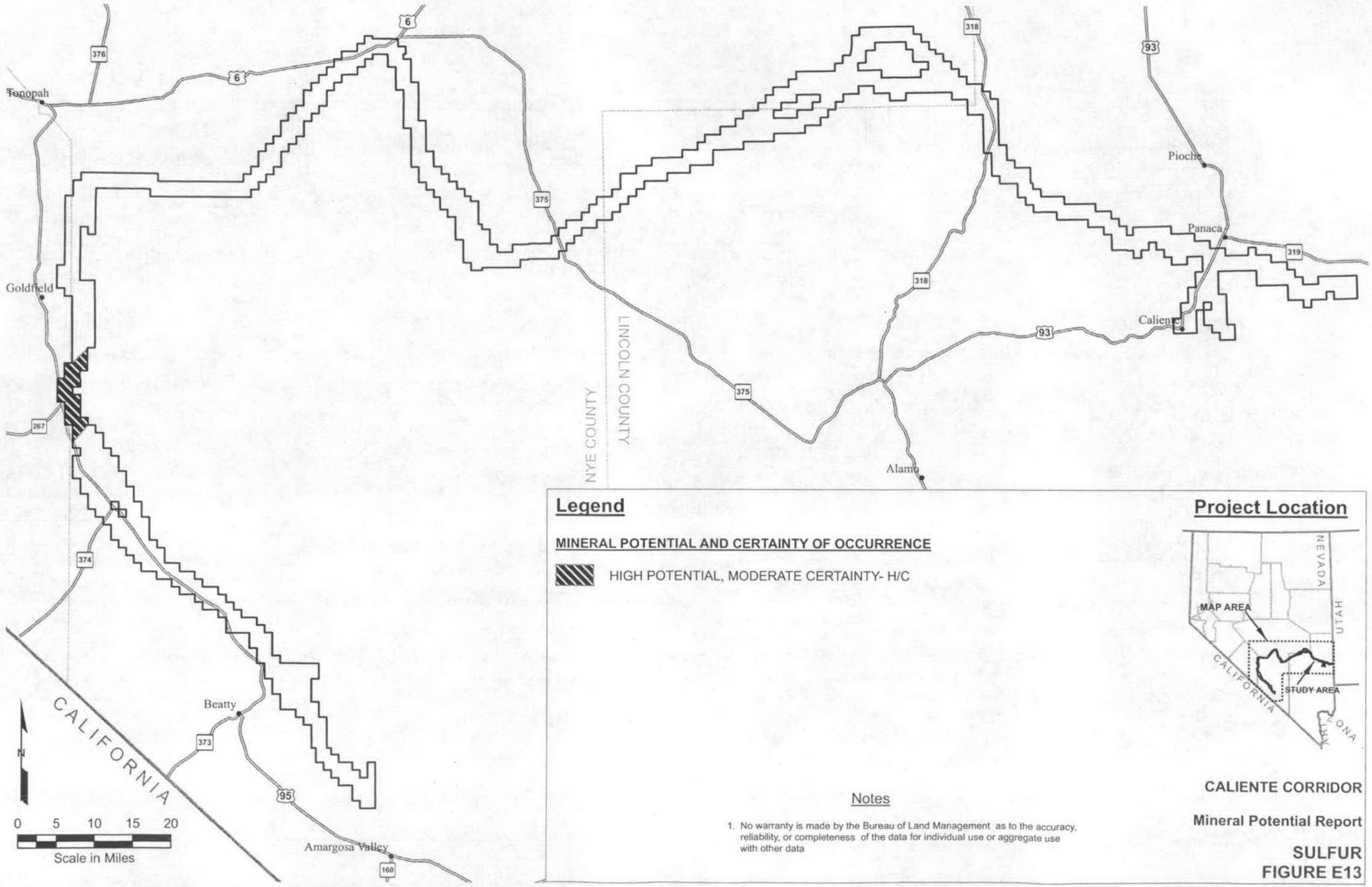
PUMICE/PUMICITE
FIGURE E10



Tonopah
Goldfield
Beatty
Amargosa Valley
Pioche
Panaca
Caliente
Alamo
NYE COUNTY
LINCOLN COUNTY
CALIFORNIA
6
93
95
160
267
318
319
373
374
375
376
N
0 5 10 15 20
Scale in Miles
Legend
MINERAL POTENTIAL AND CERTAINTY OF OCCURRENCE
MODERATE POTENTIAL, LOW CERTAINTY- M/B
PROSPECTIVELY VALUABLE LANDS
PROSPECTIVELY VALUABLE LANDS FOR SODIUM AND POTASSIUM(Only shown within study area)
(2)
Project Location
NEVADA
UTAH
CALIFORNIA
ARIZONA
MAP AREA
STUDY AREA
Notes
1. No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of the data for individual use or aggregate use with other data.
2. Wayland, R.G., Oberlindacher, P. Throckmorton, M., 1979, Lands Valuable for sodium and potassium, Nevada: U.S. Geological Survey, Conservation Division, Western Region, scale, 1:500,000.
CALIENTE CORRIDOR
Mineral Potential Report
SALINE MINERALS
FIGURE E11
E:\21-1-20102\AV_mxd\20102-035_Fig_E13_Saline-Minerals.mxd BRL 10-25-05 Created with: ArcMap 9.0



SILICA
FIGURE E12



Notes

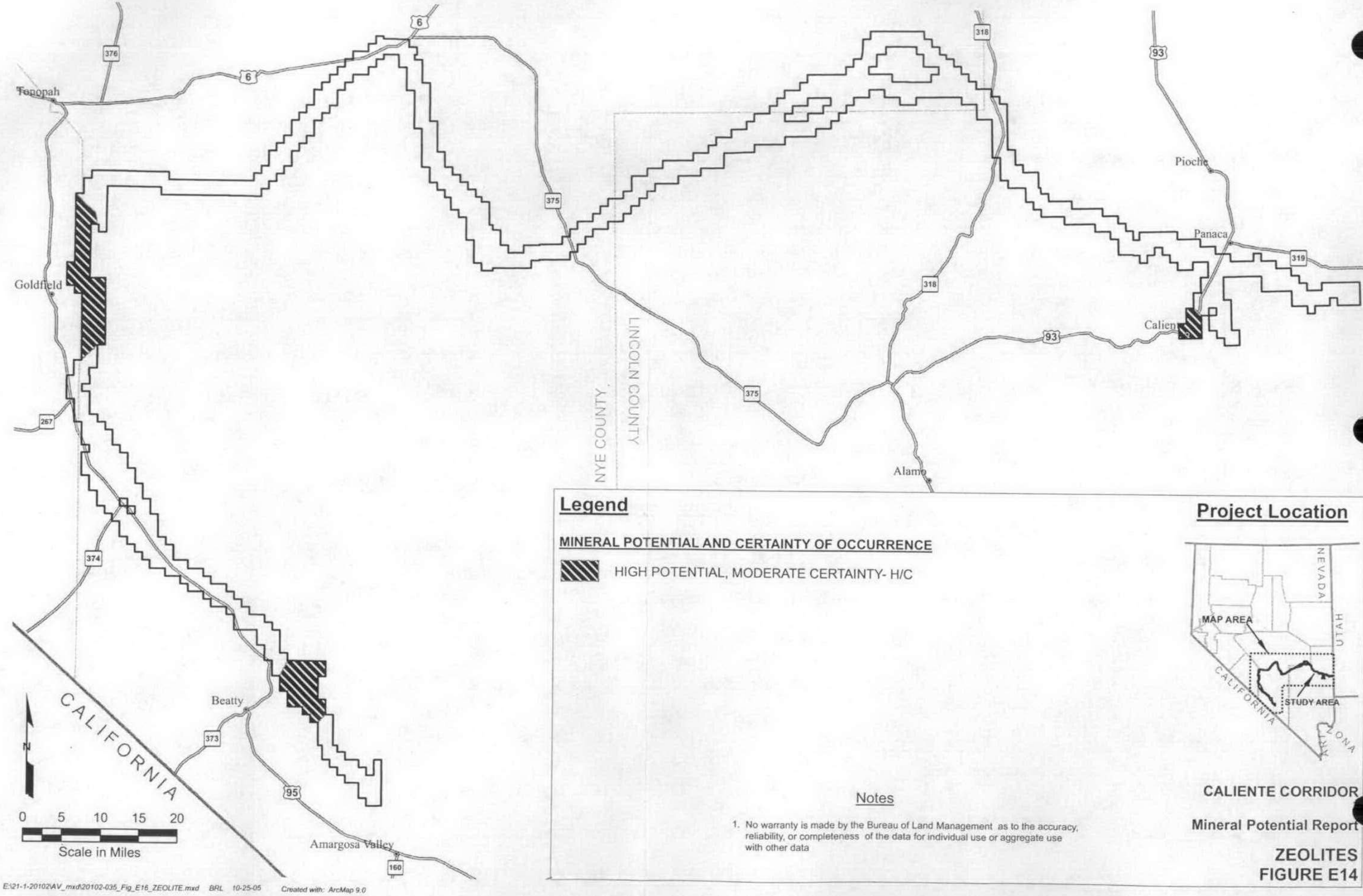
1. No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of the data for individual use or aggregate use with other data

CALIENTE CORRIDOR

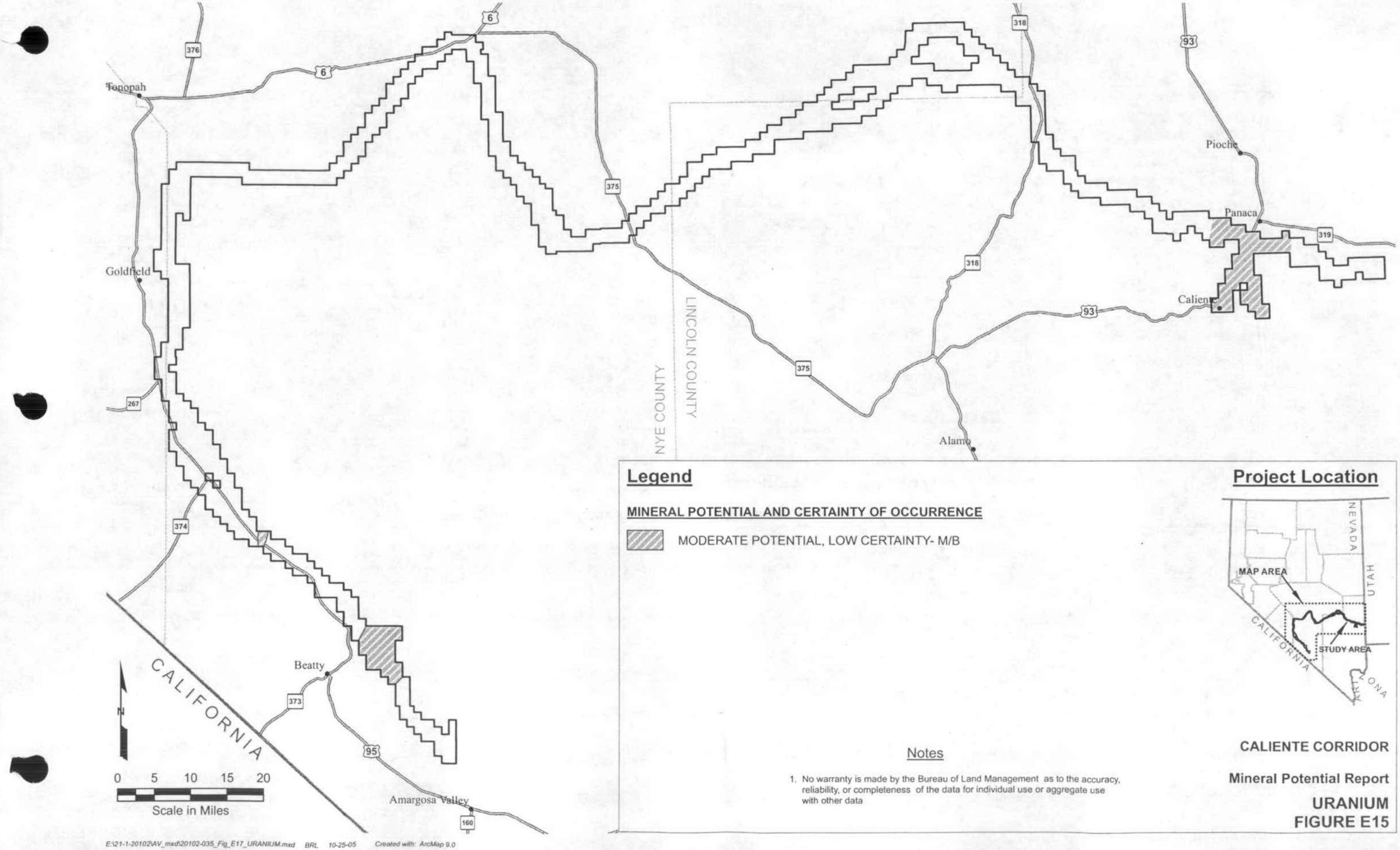
Mineral Potential Report

SULFUR
FIGURE E13

E:\21-1-20102\AV_mxd\20102-035_Fig_E15_SULFUR.mxd BRL 10-25-05 Created with: ArcMap 9.0



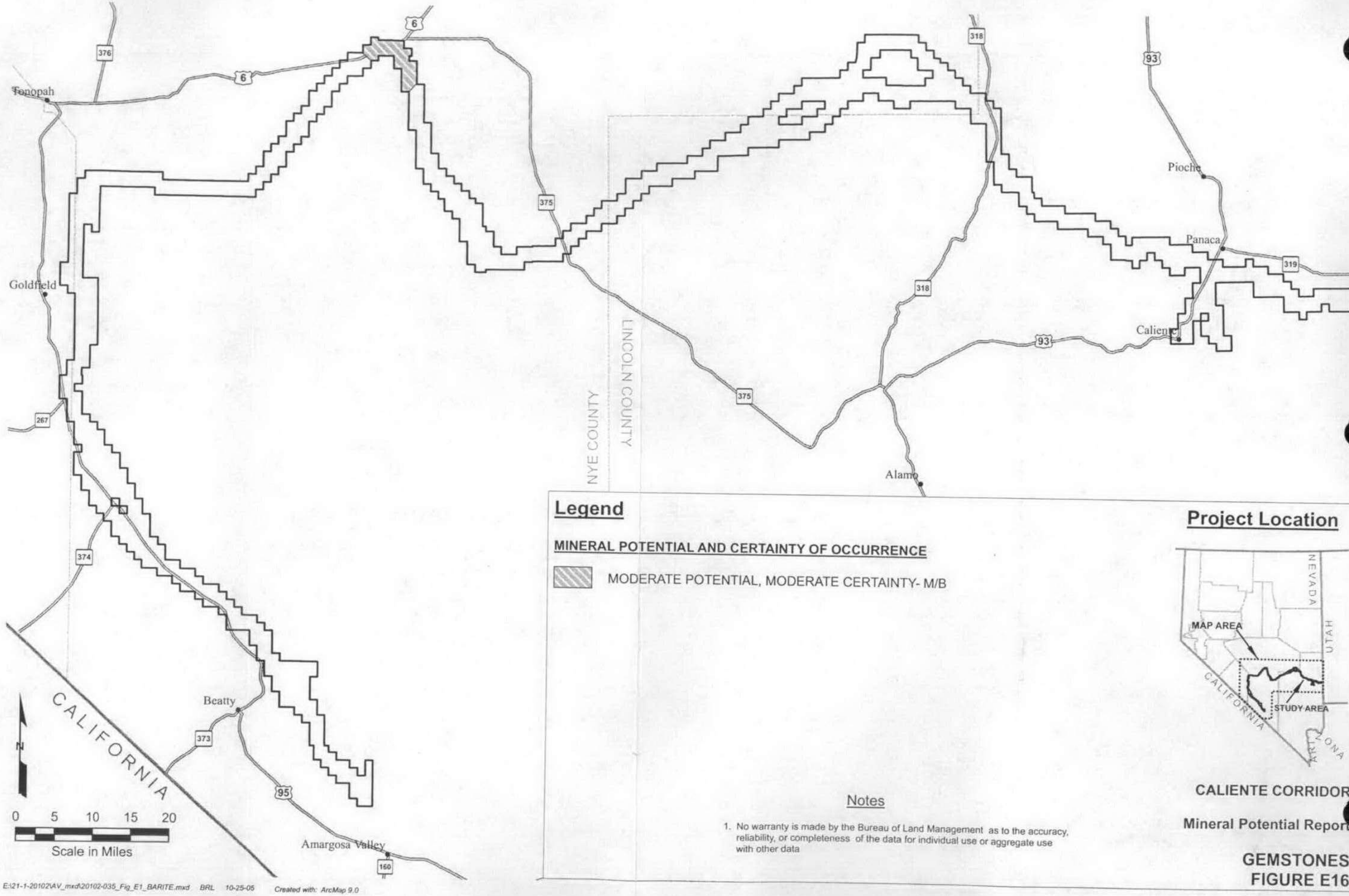
Tonopah
Goldfield
Beatty
Amargosa Valley
Pioche
Panaca
Caliente
Alamo
376
6
267
374
373
95
160
375
318
93
319
NYE COUNTY
LINCOLN COUNTY
CALIFORNIA
N
0 5 10 15 20
Scale in Miles
Legend
MINERAL POTENTIAL AND CERTAINTY OF OCCURRENCE
HIGH POTENTIAL, MODERATE CERTAINTY- H/C
Project Location
NEVADA
UTAH
MAP AREA
STUDY AREA
CALIFORNIA
ARIZONA
Notes
1. No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of the data for individual use or aggregate use with other data
CALIENTE CORRIDOR
Mineral Potential Report
ZEOLITES
FIGURE E14
E:\21-1-20102\AV_mxd\20102-035_Fig_E16_ZEOLITE.mxd BRL 10-25-05 Created with: ArcMap 9.0



CALIENTE CORRIDOR

Mineral Potential Report

URANIUM
FIGURE E15



CALIENTE CORRIDOR

Mineral Potential Report

GEMSTONES
FIGURE E16